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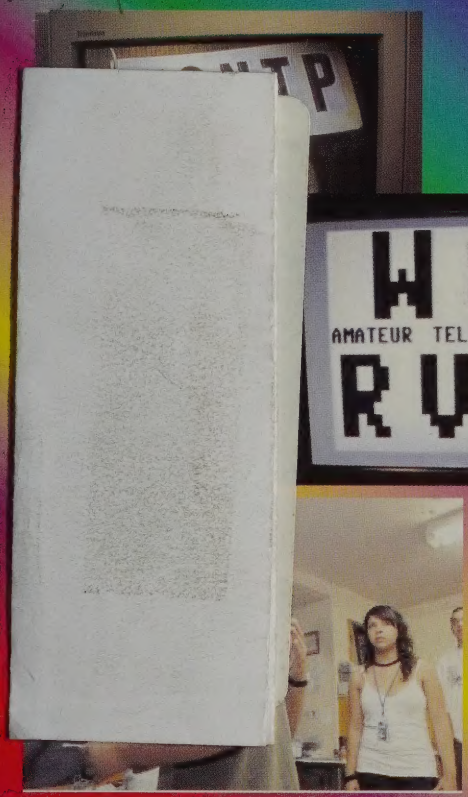
Amateur Televison Quarterly

ATV Contest 2007
The Results Are In!

North American
ATV DX Report

HABITAT SkyLab
10 Years Old!

TROPO CLUES FOR ATV - by W8ZCF & W8RVH



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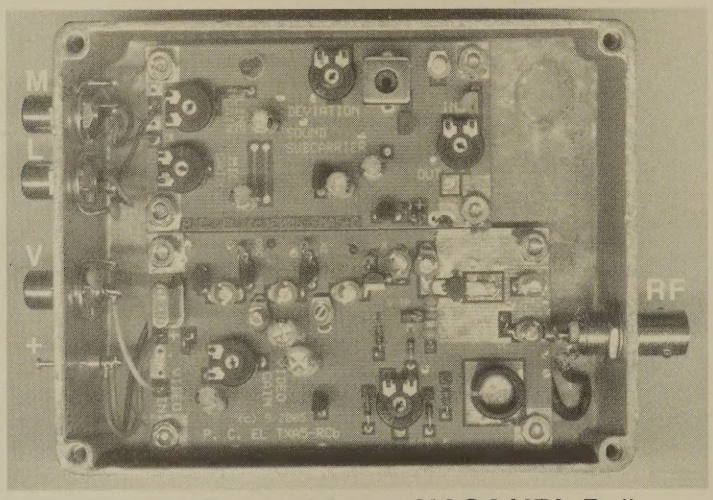

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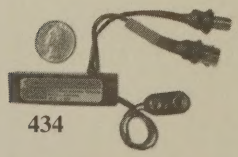

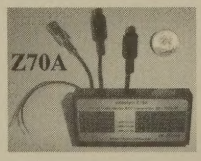

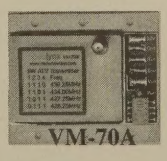

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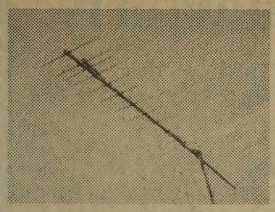

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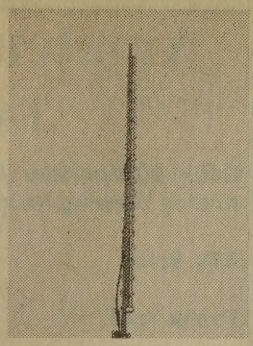

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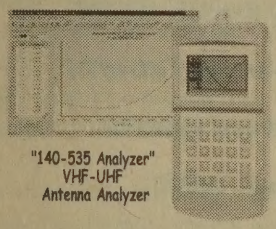

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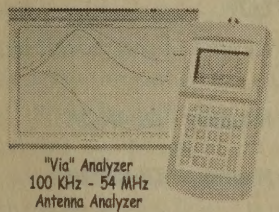

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Publisher/Editor
Gene Harlan - WB9MMM

Regular Contributing Editors
Mike Collis - WA6SVT
Bob Delaney - KA9UVY
Klaus Kramer - DL4KCK
Tom O'Hara - W6ORG
Henry Ruhwiedel - AA9XW
Paul Verhage - KD4STH

Editorial Office
5931 Alma Dr.
Rockford, IL 61108
(815) 398-2683 - voice
(815) 398-2688 - fax

http://www.hampubs.com
email: **ATVQ@hampubs.com**

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Amateur Television Quarterly

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Cable Subscribers Get Three-Year Analog Viewing Respite

by Doug Lung, September 14, 2007

Cable TV subscribers won't have to worry about receiving local TV programming on their analog TV sets, at least until February 2012, three years after analog TV broadcasting is scheduled to end. Wednesday the FCC announced local broadcasters primary video and programming material must be viewable by all subscribers. This is good news for owners of personal video recorders, laptop USB tuners and older TV sets, as well as anyone who does not want to rent a cable set-top box to receive local TV channels on their main or secondary TV sets. The bad news is, as far as I can see, that no effort has been made to require cable companies to put digital basic programming on unencrypted digital channels. While many cable companies are already carrying broadcast DTV signals unencrypted, there is currently no requirement for them to do so. Unless this issue is resolved, even people that purchase new DTV sets with "ClearQAM" capability will be unable to receive all basic cable channels without renting a set-top box. Furthermore, viewers that want to watch digital cable on their laptops or PCs won't be assured they will be able to receive local stations over digital cable without a set-top box, which is likely to be difficult to interface with the laptop or PC.

I'm surprised consumer electronics manufacturers haven't insisted on unencrypted digital basic cable. Perhaps they, and consumer organizations, will be able to do this before the analog requirement ends in February 2012. One hope is that the FCC says cable companies can carry broadcast signals in digital format only before the deadline providing all subscribers have the necessary equipment to view the broadcast content. The FCC agreed to review this requirement in the last year of this period. Perhaps by saying that if the digital signals are carried without encryption and are receivable on TV sets with "ClearQAM" tuners, they will have met the viewability requirement in the FCC Order.

ATVQ

ATV SCAM

Please be advised that I too as Dick, WA3USG was ripped off by that outfit that is ripping us off. I had ordered the 1.2Ghz xmtr and never did receive the unit. And could not trace them!

Thanks for the verification in your fine magazine.

TOM - W3RCJ

ATVQ - Thanks for letting everyone know, Tom. I have been having a little fun getting back into programming using these units to play with. I have programmed PIC's for the 1.2 GHz Comtech transmitters and receivers that will cover a wide frequency range and step every 500 KHz. Then I did the same thing for the 2.4 GHz units moving in 1 MHz steps.

Because of requests at the Dayton Hamvention, I have placed an order for 900 MHz, 1.2 GHz, and 2.4 GHz transmitters and receivers to sell. I will have to find time to do the programming on the 900 MHz units after they arrive.

So, in the near future you will have a source in the USA.

ATVQ

Thank You!

Gene,

I just wanted to thank you for putting my cantenna in the magazine. I have been selling a bunch of these in Europe through Ebay. Art, WA8RMC was going to write a review of it but it was too short of notice. Maybe next issue.

One of my customers took one with him to the Central States VHF Conference held this year in Texas. He had it tested on the "antenna range". It produced 8.7dBd gain!

Thanks again.

ATVQ

Tom Walter - wu8o
wu8o@emec.us

Banquet

The Central Illinois/St. Louis Area Amateur Television Club will hold their 22nd annual banquet on Sunday, November 11, 2007 at the Ariston Restaurant in Litchfield, Illinois.

The banquet starts at 4 PM with a get acquainted hour and dinner served at 5 PM. Following the meal awards will be presented including the club's annual ***ATV Operator of the Year*** plaque. A large prize drawing will follow.

There will be a small area for swap and sale items. For further information contact Scott Millick, K9SM, at 217-324-2412, **smillick@wamusa.com** or 222 N. Jackson St., Litchfield, Il 62056.

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Scotty - K9SM

ATV - TV ch3 Receiver

We have a new source for the MCM electronics 33-2060 TV channel 3 receiver and are now available from us along with the app note for adding S-meter, audio squelch and 12-14 Vdc for $89. These are great for those who want to connect their down-converter channel 3 output to a module that will give video and line audio output to drive a monitor or recorder instead of a TV. See the Rch3 app note on our web site.

Tom O'Hara W6ORG - P. C. Electronics
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ATVQ

North American ATV DX Report

By: Bob Delaney - KA9UVY - Email KA9UVY@hotmail.com
10630 N. Delaney Lane
Mt. Vernon, IL 62864
DX Hotline 618-242-7063

AFTER THE CONTEST REFLECTIONS

Well, another summer has come and gone and along with it the annual ATV DX contest. I wait like the rest of you to see how well everyone did. It looks like another contest without a huge Tropo event so every contact was earned the hard way. I am sure the top scoring stations put in a lot of time and effort, something that you have to do if you are going to be a successful ATV DX operator. Building a good station and propagation is only part of the equation.

There are a few key ingredients that go into a 2-way ATV DX QSO and one of them that is many times overlooked is operator skill. My elmer drilled that famous line into my head, "Being A good operator adds another 3db to your signal."

Now, back then we were talking about CW and having a good fist but the same principal still applies to any type of radio communications whether it is traffic handling, emergency communications, net control, ragchewing, and especially contesting.

Since the ATV DX community is such a small group and since we almost all use the same transmit frequency for sending video and for talkback it is easy for chaos to break out once the band actually opens. I heard some of this over the summer and even though I found it exciting I am sure that many less seasoned operators got a bit frustrated.

Hearing 3 QSO's on 144.340 at once can be a real shocker since many times you can call CQ in a 360 degree circle and not get a single reply but what we need to remember is that we are not rock bound these days and simply QSY.

Many in the Midwest either go up to 144.360 or down to 144.320 to finish coordinating our video QSO or our conversation. Make yourself some ID slides that have the alternate frequencies on them since many times your video may be seen but your talkback channel will be unknown to others.

Also, if the band opens or shows signs of being good please, don't misuse the National ATV calling channel! 144.340 is not and should not be used for SSTV or for non ATV related traffic. This is especially true during the summer contest period. Some of us operate both modes and I am sure that the last statement may be a bit controversial but keep in mind that SSTV can be used on any of our Amateur bands while ATV can only be used on 70cm and up. DX on ATV usually peaks in the mornings and evenings so having a clear and useful coordination frequency is of the utmost importance to an ATV operator.

We cannot simply switch bands when the sun comes up and continue to get pictures from all over the world. Many times we only have a short window of opportunity to use our equipment. Please extend some courtesy to your fellow amateur and don't abuse 144.340!

Another thing that should be avoided during the contest period or during a huge band opening is long duration video transmissions. If the band is open and you are working someone with a great signal level please don't forget that many others may be seeing you as well and waiting for a chance at a 2-way. Try and resist the temptation to show everything you own (even the pet) during this one QSO. Also consider switching to 434 or 427.250 if you have the luxury of a solid state transmitter and amp. Many of the high power stations cannot easily QSY due to tube amplifiers and homebrew exciters so they should try and keep things brief, leaving room for the lower power stations to work during the peak of the opening. The window of opportunity should remain open for them longer anyway so no one should be left out.

HIGHER BANDS

Another thing noted here over the summer months was the interest in higher frequency operation, something I really enjoy seeing. Many stations in the Midwest seem to be taking an interest in higher frequency operations and even FM ATV. Whether you are trying to improve your contest scores or learn more about the differences in propagation nothing is more exciting than trying a new band. Several stations ventured into 1.2 GHz operation this summer or are now in the process of doing so. Others who had the equipment hooked it up and tried it this year and as a result we saw the Overland Distance Record on 23cm extended to over 300 miles by W8ZCF and W9ZIH! I had a new one worked this year on 1.2 with K3SIW in Northern Illinois EN52ta extending my personal best to 260 miles. I also saw Ohio on 1.2 first time ever receiving Richard, W8RVH's, high

power 1.2 FM signal over a 284 mile path. I didn't have the muscle to get my signal back to him but seeing a new state on 1.2 was exciting.

Dave, NR8TV, in South Central Ohio is adding 1.2 FM to his station and should provide an excellent DX target from the Midwest. N9XHU also installed a 1.2 loop yagi and he was worked as another new one for me this summer.

Hank, W4HTB, in Bowling Green, KY is also working on his 1.2 gear and has new feedline to be installed soon.

If we look carefully at the logs this year I am sure that we will see more higher band loggings than in previous years and who knows what Fall Tropo season may bring. Records are made to be broken and I believe that we are capable of improving on all of the ATV records recorded to date.

NEW OVERLAND RECORD ESTABLISHED ON 33CM !!! KC8LMI > KA9UVY 370 miles

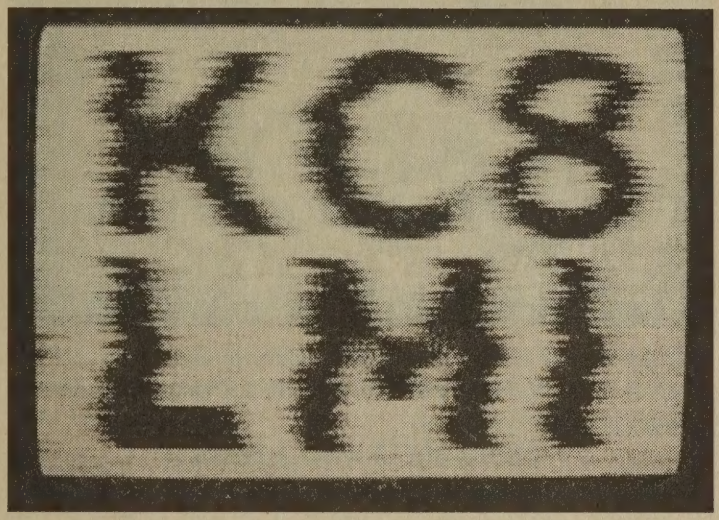
Another significant ATV milestone was achieved this year and I was lucky enough to be a part of it. An overland record was established for the forgotten 33cm band on August 17th at around 12:30z when Bryan, KC8LMI, and I hooked up on 144.340 to put 33cm to the test. First let me set this up a little bit and explain why 900 MHz? Everyone who knows will tell you that that band is an RF nightmare in most parts of the country and even hard to establish short distance video links without major interference.

Here is the scoop: My very first ATV experience was on 900 MHz after a buddy of mine showed me an article from 73 magazine about using the Gemini Rabbits. The first ATV in the Mt. Vernon area was indeed on 910 MHz with modified Rabbits. We achieved P-3 color pictures at 5 miles after building antennas and many months of experimenting with the Rabbits. The ATV bug had bitten me but good. Another lure of 33cm is the availability of very high power solid state amps surplus from the cellular and paging industry. It also didn't hurt that I still had antennas from the Rabbit days laying around. The last thing driving me was the 'can it be done factor.'

The contact started as usual checking 70cm ATV signals but we only saw around P-2 signal strength's. I had been building up a 900 MHz AM station here this summer in hopes of eventually working him but expecting it to take up to a year to get enough propagation for an attempt.

Since Bryan's station was well established and running at a higher power level we decide that he should shoot first. My job was to fish through all of the junk that that band is littered with and try and find his AM carrier. I employed the same TV and narrow IF filter setup I use on 70cm here with the 706 MK2G IF receiver.

Surprisingly after only a few minutes I heard a heterodyne grinding away very near the noise floor. I kept watching and it kept getting stronger eventually making sync on the TV! Within about 10 minutes he had built to a nice P-1 and seemed to be getting stronger.



KC8LMI peak signal 1

I was taking pictures of the TV and trying to prepare for my turn at the same time. We were half way there!

I suggested to Bryan that we push for the 2-way and a possible record for that band. Instead of waiting for his signal to peak I urged him to find and prepare his camera, drop his transmitter, and start looking.

This is where things got a little tense: Bryan's station was set up for 910.250 operation with a filter and crystal controlled downconverter. I only had a crystal for 923.250! Also due to lack of activity, TX/RX relays were never installed and he would have to re-cable. Bryan scrambled to hook up a tunable downconverter and find his camera only to see that the batteries in it were dead :(

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While all of this only took maybe 5 minutes it seemed like forever to me. I just knew that the band would fold and we would be left half done. Eventually Bryan finally found my puny signal in all of the RF goo and started to take snapshots.

You can see the interference clearly visible in my signal received at KC8LMI on 923.250. The contact lasted over 45 minutes peaking P-3 signals.

Equipment used:

Both ends used P.C. Electronics TX33-1's attenuated to drive Glenayre 500 watt solid state amplifiers. KC8LMI had 350 watts pep and KA9UVY had 150 watts pep.

Both also used P.C. Electronics downconverters and KA9UVY used a Down East Microwave preamp and narrow IF bandpass filter.

KC8LMI used 2 homebrew 45 element loop yagis @ 111 feet fed with 1-5/8" hardline.

KA9UVY used a single 33 element Directive Systems looper at 125 feet fed with ½" hardline.

What's next? Maybe a try at 23cm FM ATV down the road??

FALL TROPO AROUND THE CORNER?

It seems that activity has really dropped off after the contest but now is not the time to put the gear away for winter.

Traditionally the really big long haul Tropo events have been more prevalent in the Fall. You still have a chance at working maybe the best DX of the year after you get this issue of ATVQ. Keep an eye out for signs of an opening and please let me know if you are working DX. ***The next issue of ATVQ will not have NADX in it unless I receive input from you.*** This column was not meant to be an extension of my logbook. Now that the contest is over **please** take the time to report any DX you work, or if you have made improvements to your station, added bands etc. Please send in photos of your captured DX if possible and if there is room you will see them in ATVQ.

Thanks again for your support!

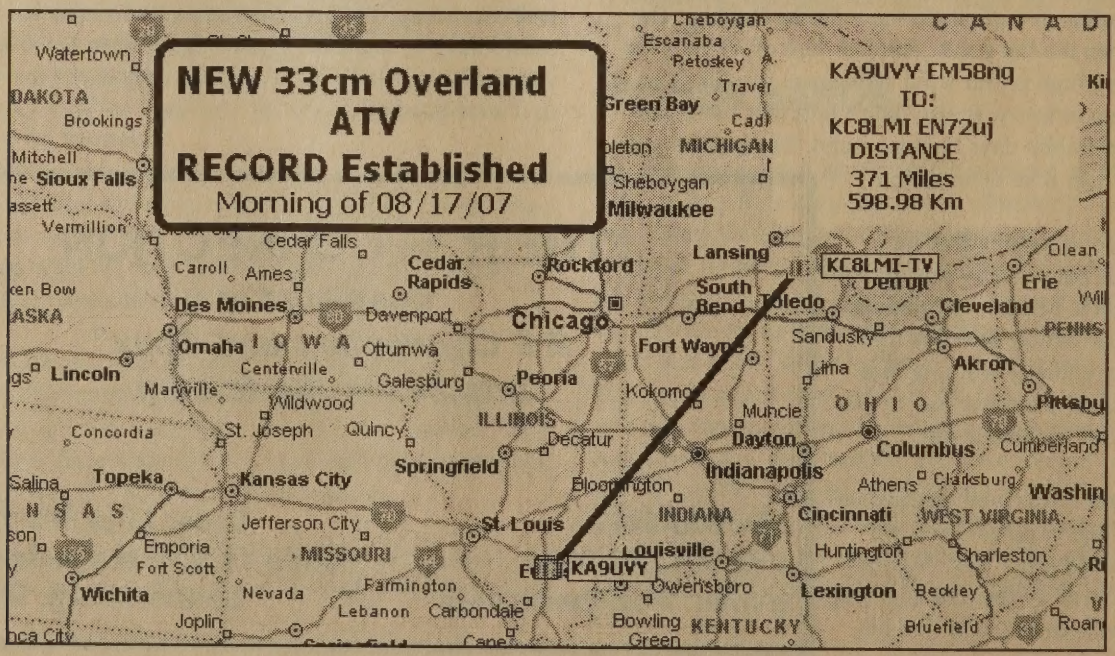
Important DX Info:

The ATV DX Record page at P. C. Electronics:
http://www.hamtv.com/atvdxrecord.html
If you have done better, be sure and send your information to Tom at P. C. Electronics. Let's hope we see those records grow this summer!

The Hepburn tropo forecast page:
http://www.dxinfocentre.com/tropo.html

If you are online you can post ATV CQ's and reports to the ATV Logger page:
http://dxworld.com/atvlog.html

ATVQ



WWW-SSTV - Another Way To Slow-Scan (G. Weerts, DF3EY)

The traditional way to work slow scan TV stations is using a transceiver on a pre-defined frequency on shortwave or on 2 m. There you will know the active stations soon, unless the rf interference is heavy or no contact possible. So Dieter, DL5DK, made up his mind how to improve this situation. Result is a PC software called "WWW-SSTV" with a current version V4. There you see that it´s development has consumed some time and extensive testing.

With "WWW-SSTV" you are able to transfer a picture via the internet through a special server. This picture is sent to all logged users, who can answer or start a call themselves. The server is storing each picture and putting out one after the other. Now some will ask what this method has in common with amateur radio. This is another function of WWW-SSTV: the second "gateway" version in addition to the normal "user" version. Stations with an active gateway mode are transmitting pictures from the internet server onto rf in SSTV mode "Martin 1". If this gateway is a VHF/UHF repeater station at a decent location, the pictures can be seen at long distances. Recently there are three repeaters connected to the system: DB0DXM (JO41FH), DB0QF (JO31GN), HB9ZF (JN46GP). On the other hand it is possible to transmit an SSTV picture to the gateway station using one of the analog modes like Martin 1, Martin 2, Scottie 1, Robot 36 etc.

In practical use one can be at home or portable in the field with a laptop computer and a handheld radio and work SSTV stations in Italy or Switzerland or in USA, just all over the world. He only must have contact to the gateway station which is transfering his pictures to the next gateway or to a user on the internet. Within the software you can process the pictures and overlay with text messages. Another possibility is to connect a live webcam for still pictures transfered in SSTV.

As the gateway is sending out every picture on rf one can just "sit" on the frequency and watch beautiful views from all over the world. Registering the call "SWL" you also can use the software except the transmitting function. If the gateway station has received many pictures from the internet piling up in it´s store, the transmission on rf would take too much time. So the software is switching to a faster mode (i.e. Martin 2 instead of Martin 1), and as the common SSTV programs are able to recognize the received mode (by evaluating the 7-bit binary VIS header prior to the actual picture content, FSK-ID), there should be no receiving problem. And if you want to have an SSTV contact only on your local repeater without world-wide involvement just switch off the FSK-ID signal in your SSTV software. In any case please switch off the CW code ID in order to avoid overlapping picture transmissions.

For picture exchange with WWW-SSTV you need a Windows PC, TRX with PTT control connection and a DSL internet access. WWW-SSTV software by DL5DK is freeware, download at **http://www.www-sstv.de**
Discussions and questions on WWW-SSTV at
http://de.groups.yahoo.com/group/www-sstv/

Translations by Klaus, DL4KCK
AGAF e.V.

ON THE WWW: NEW GRIDFINDER AT QRZ.COM

The popular QRZ.com website has added a new feature. It's called GridFinder and it can be used to determine the Grid and latitude and longitude coordinates for just about any point on the planet. Check it out at **www.qrz.com/gridfinder**

Cable Loss Calculator

Ther is a good cable loss calculator on the web where you use a pull down menu for the Times coax model number, then put in the frequency. It will then give the exact loss per 100 ft or you can put in the length and get the loss.
http://www.timesmicrowave.com/cgi-bin/calculate.pl
check it out.

ATVQ - Video Processor

I got my issue of ATVQ a couple of days ago. Nice job ! Please thank Jessica for the great job she did for the front cover picture.

73's
Bob, W6KGE **w6kge@yahoo.com**

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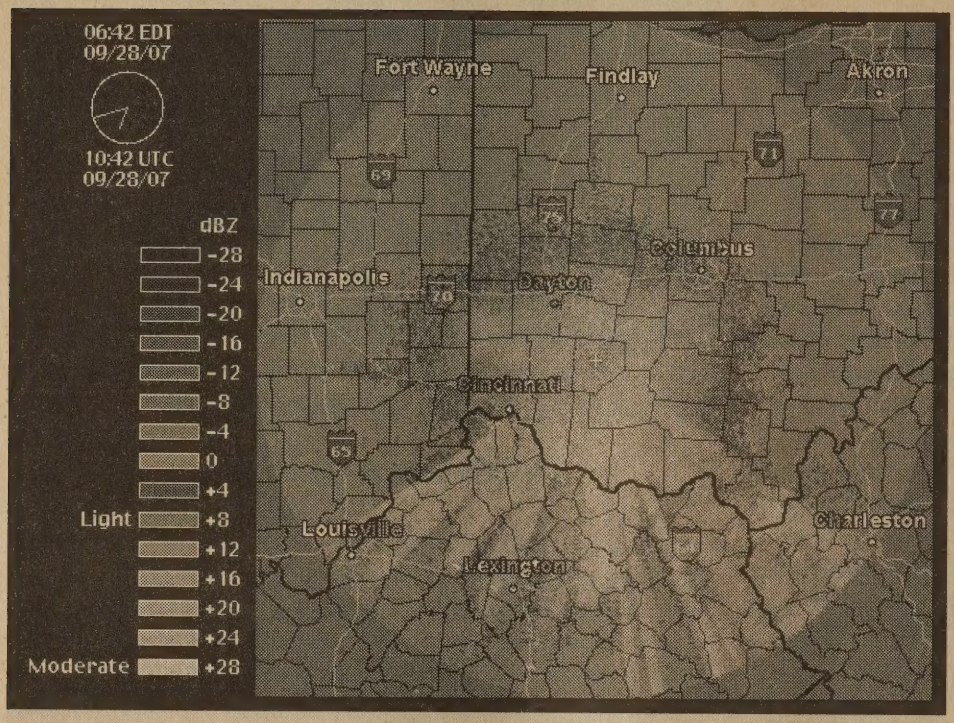
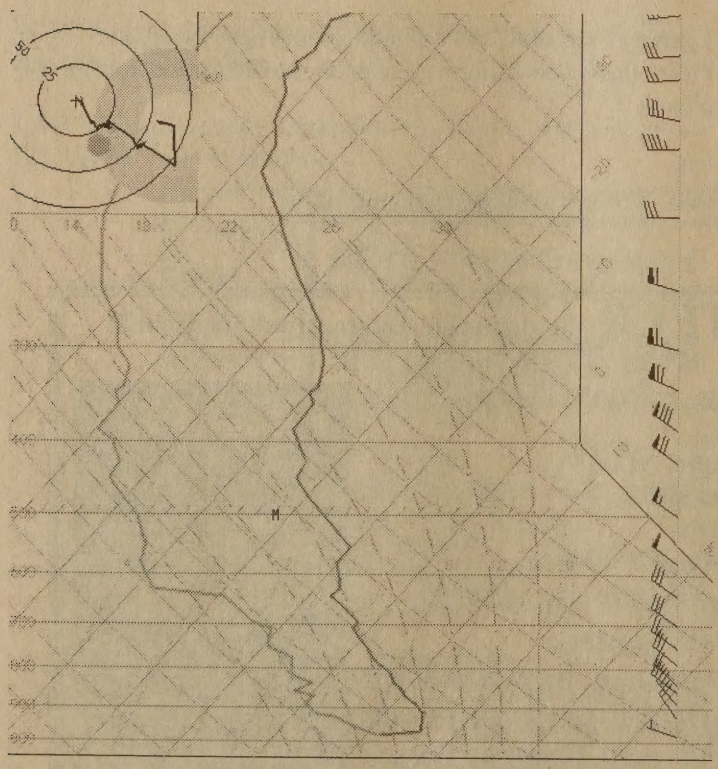
The "Power" of Enhancement and Tropo Clues for ATV

By Ferrell Winder, W8ZCF Email: twinder@fuse.net
6686 Hitching Post Ln
Cincinnati, OH 45230
and Dick Goode, W8RVH
9391 Ballentine Rd
New Carlisle, OH 45344



This summer some very good ATV exchanges were made between several Midwest stations. Clues which are believed to definitely contribute to enhancement are discussed. These clues relate primarily to temperature inversion. It is hoped that others will experiment with these clues which come from Nexrad Radars and data from Weather Balloons which should help expand DX possibilities. The following are a couple of experiments to show the "power" of enhancement.

On July 21, 2007 W8RVH and W8ZCF experienced an unusual ATV opening. W8ZCF received W8RVH at around 8:17 AM.



Microsonde on 9/2/2007

On 1280 MHz: (Distance 70 miles)

P5 with 50 watts from W8RVH
P1 with 50 milliwatts

Photo 2 - W8RVH - 439.25 MHz 9/6/2007
Dick Goode - New Carlisle, OH - 70 Miles

Say you saw it in ATVQ!

On 439.25 MHz: (70 miles)

P5 with 300 watts from W8RVH (Photo1)
P2 with 50 milliwatts
P1 with only 1 to 1 ½ milliwatts.

With a 1 watt slug, W8RVH kept adjusting the power until only 1 needle width of movement was noted. W8ZCF observed the picture shown in Photo 2.

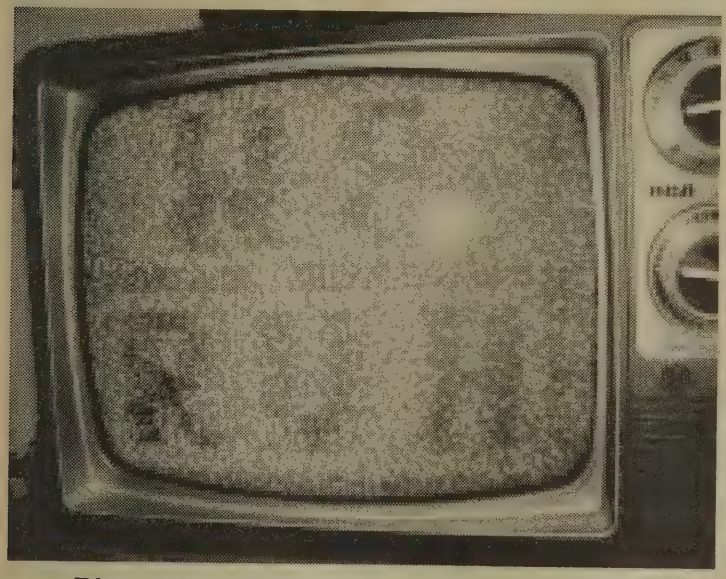
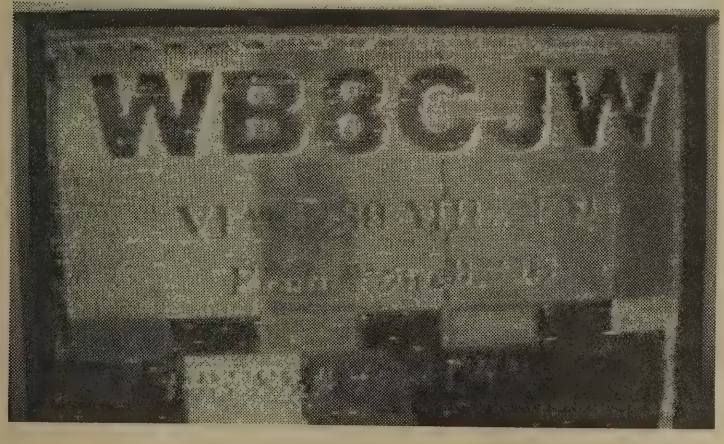


Photo 3 - W8RVH - 1280 MHz 7/2/2007
Dick Goode - New Carlisle, OH - 70 Miles

Also to demonstrate strong enhancement, see Photo 3. This was received by W8ZCF from the ATCO Columbus Ohio repeater on 1280 MHz. The interesting fact is that the ATCO Repeater is vertically polarized and signal was received on a horizontally polarized antenna at a distance of 96 miles. Normally it is impossible to receive ATCO on 1280 MHz

As reported in ATVQ Summer 2007, W8RVH and W8ZCF exchanged both 400 and 1200 pictures with Ron Stefanskie, W9ZIH, Malta, IL. (See ATVQ for details).



WB8CJW - 1280 MHz 9/13/2007
ATCO - Columbus, OH - 96 Miles

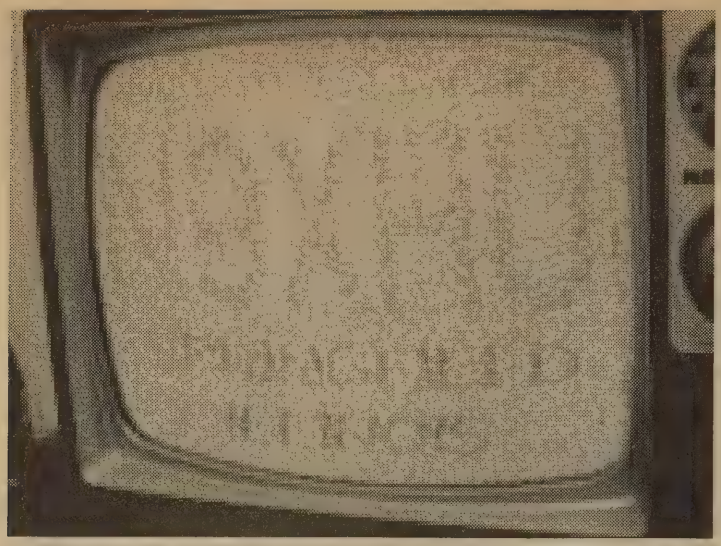
Tropo Enhancement Research

Several times tropo paths are very good in July, August, and September. For several weeks on almost a daily basis the Wilmington Nexrad radar ground clutter echoes were observed around 7:30 AM when ATV activity got underway. Exchange of video was tried on both 439.25 and 1258 MHz. The object of these radar observations is to be able to predict openings that would be possible locally as well as extend to other, perhaps, distant areas. The Wilmington, Ohio Nexrad plots along with the NOAA Microsonic Weather Balloon data were compared each day.

W9ZIH - 8/13/2007
Ron Stefanskie - Malta, IL - 307 Miles

KA9UVY - 9/28/2007
Bob Delaney - Mt. Vernon, IL - 248 Miles

The Nexrad Stations may be obtained for most states in the USA from:
http://www.wunderground.com/radar/map.asp



N9XHU - 8/17/2007 - 283 Miles
Leonard McWhorter - Springfield, IL

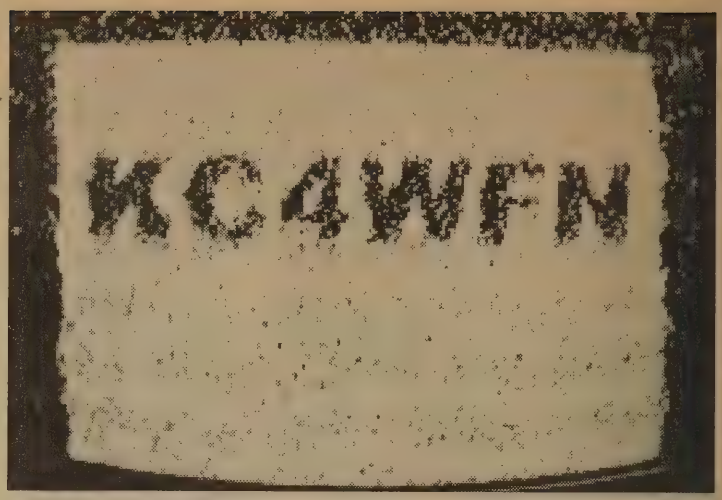
A composite of a region covering a 1 km (600 mile) area can be viewed at:
http://weather.cod.edu/analysis/analysis.1km.html

In analyzing radar displays it is informative to select an animated display to determine changes in the echoes.

W4HTB - 8/12/2007 - 182 Miles
Hank Cantrell - Bowling Green, KY

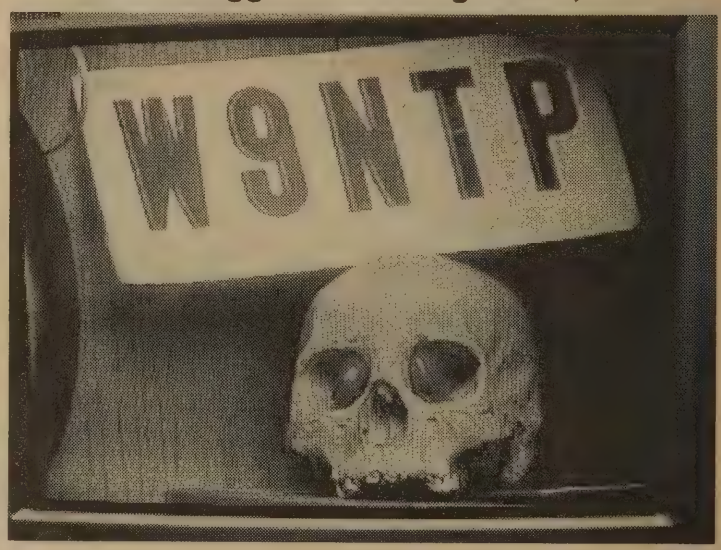
Balloon data may be obtained from the same weather site as the radar station at:
http://www.rap.ucar.edu/weather/upper/

To gain further insight as to the details of temperature inversion, a meeting was held at the Wilmington, Ohio NOAA Service Center. This meeting was very informative in being able to analyze the radar ground clutter patterns. Ground clutter is not normally present in a Nexrad display but may be added by clicking on the note below the display to add ground clutter. In Fig. 1 the temperature inversion was very pronounced such that AP (anomalous propagation) took place. AP causes the radar beam to



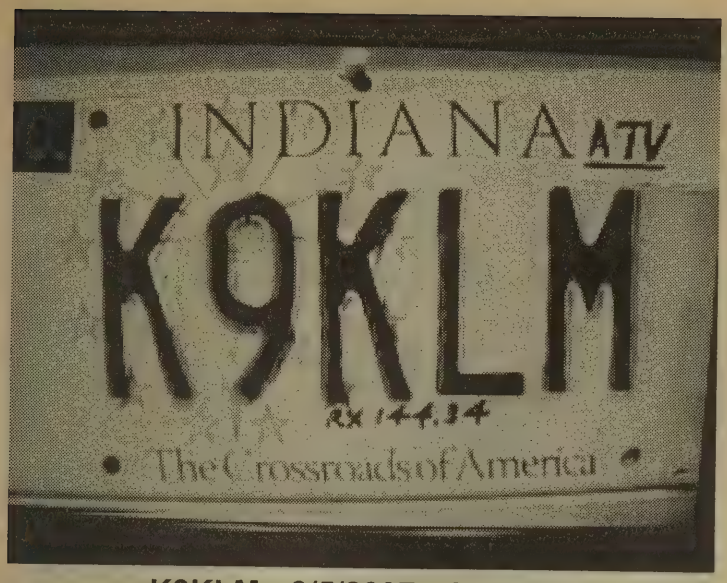
KC4WFN - 7/6/2007 - 183 Miles
Marshall Love - Bowling Green, KY

K4NVQ - 7/25/2007 - 183 Miles
Dean Maggard - Bowling Green, KY



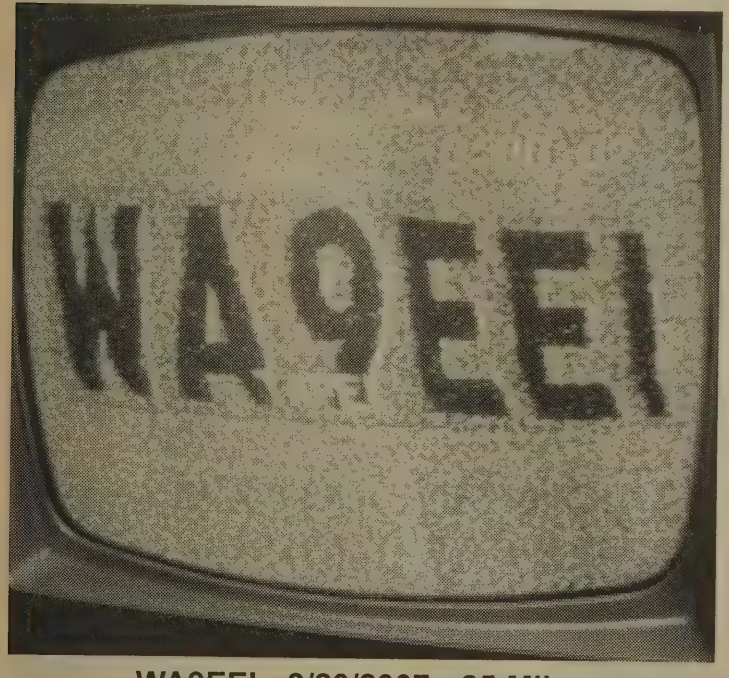
W9NTP - 8/11/2007 - 72 Miles
Don Miller - Waldron, IN

Say you saw it in ATVQ!



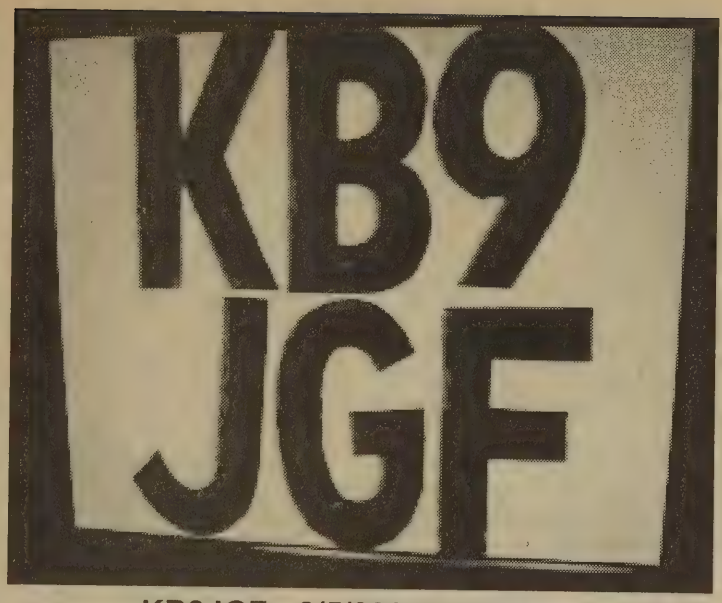
K9KLM - 9/5/2007 - 65 Miles
Bernie Moores - Westport, IN

reflect from the inversion and then hit the ground giving a strong echo that could be interpreted as a precipitation area. To eliminate this, a filter is activated to remove some of the intense portions. This leaves a pattern with "fingers" as noted. Whenever fingers are present it is usually a good indicator that enhanced propagation is present and depending on the cross country extension of inversion, DX will be possible.

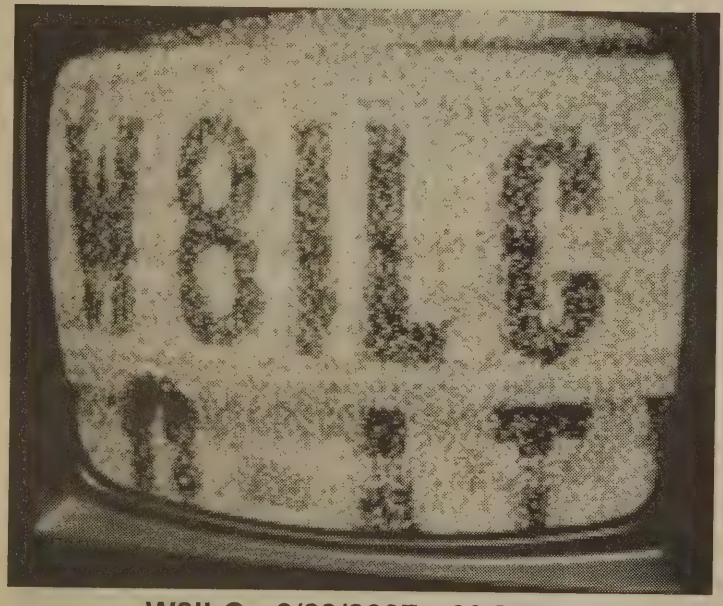


WA9EEI - 9/20/2007 - 85 Miles
Harold Trimnell - Taylorsville, IN

The Wilmington weather analysts advised that, "Inversion usually occurs when skies are clear at night and winds are light." They also say that "additionally if it has been clear all night long with light winds, you can be almost certain that an inversion exists." This basic condition is then a setup for encompassing a local area as well as a distant area.



KB9JGF - 9/5/2007 - 74 Miles
Hank Cantrell - Bowling Green, KY



W8ILC - 9/29/2007 - 60 Miles
Ron Moorfield - Dayton, OH

Sometimes at night large circular ground clutter patterns will be observed that could be mistaken for temperature inversions. The weather analysts explained that this can be caused by turbulent eddies in the atmosphere. They say that turbulent eddies are a sign of a well-mixed atmosphere in which no inversion takes place. If one continues to observe the Nexrad patterns there will also sometimes be returns from bird flocks or insects which have a unique small partial circular pattern.

The Radar patterns were compared closely to the Microsonic weather balloon data. The balloon graph gives an excellent curve of temperature vs. altitude. Temperature inversion is apparent when the beginning slope of the curve is positive. (See Fig. 2) A normal curve without inversion would have a negative slope from the start. Such a curve is normally seen when the balloon is launched at night.

ATVC-4 Plus

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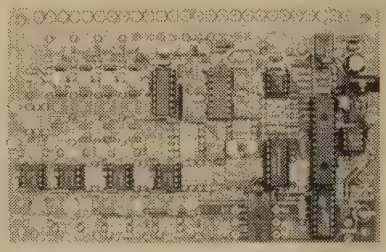

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http://www.icircuits.com

Besides looking at the radars and weather balloon data it is strongly suggested that for the excitement of new contacts and DX that the Amateur TV Activity Log be reviewed whenever ATV is activated by any station.

The log may be found at:

http://dxworld.com/atvlog.html

It has been noted that the Log has sometimes been active by the Ohio, Illinois, Oklahoma, and Kansas folks but where are the Pennsylvania, New York, West Virginia, Tennessee and other states that want to be seen and establish DX records?? Voice communication coordination is also usually attempted on 144.34. MHz and / or 3930 KHz.

Note that P.C. Electronics maintains an ATV DX Record page **at: http://www.hamtv.com/atvdxrecord.html** .

ATVQ

Looking forward to ATV, newcomers, and new DX records. !!

KC8LMI - 9/7/2007 - 55 Miles
Bryan Dygert (mobile) Springboro, OH

WB8LGA - 7/21/2007 - 126 Miles
Chuck Beener - Marengo, OH

KB8GUE - 9/29/2007 - 48 Miles
Ron Piatt - Leesburg, OH

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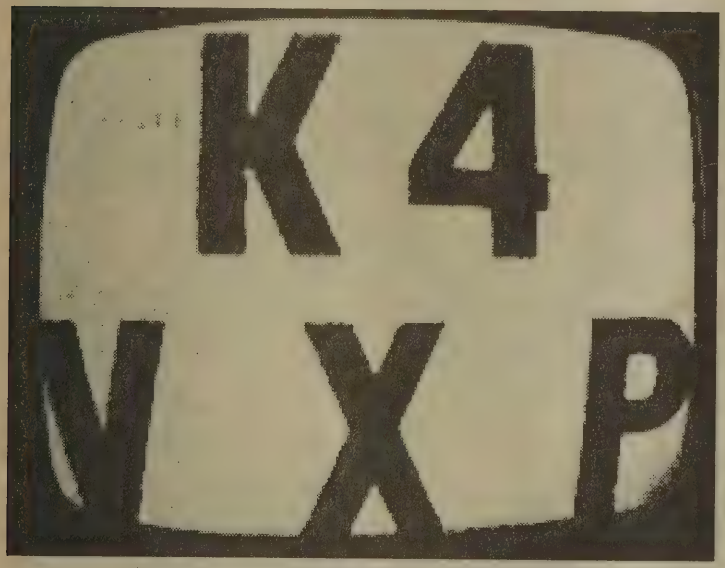
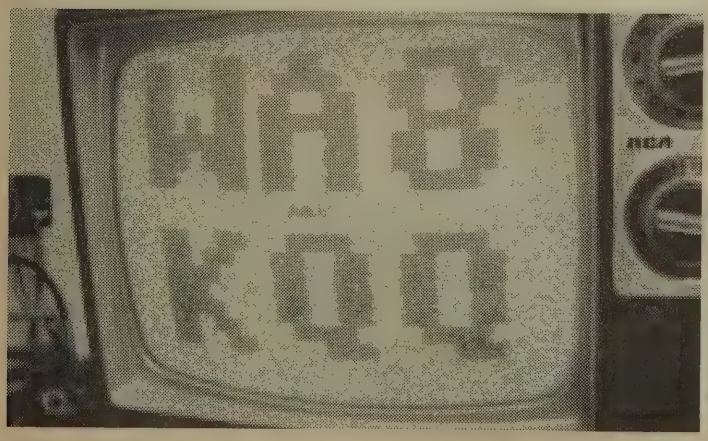
Say you saw it in ATVQ!

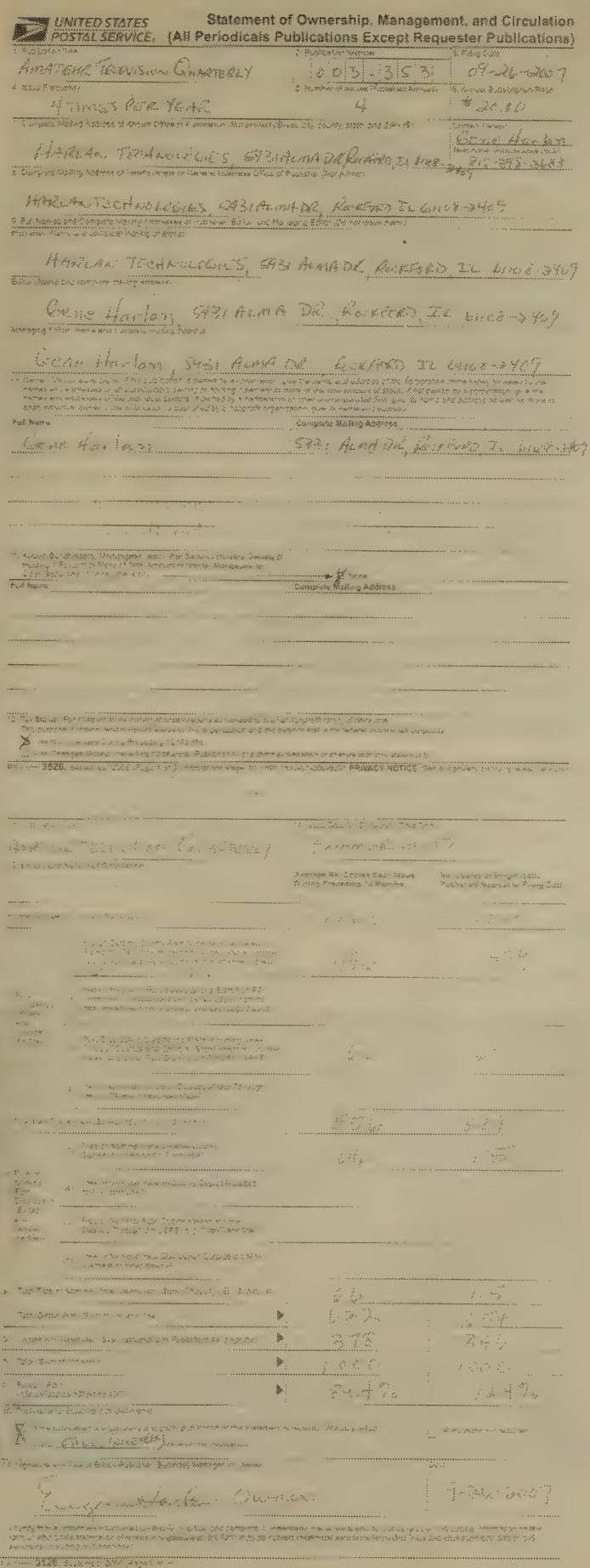
NR8TV - 6/18/2007 - 55 Miles
Dave Kibler - Greenfield, OH

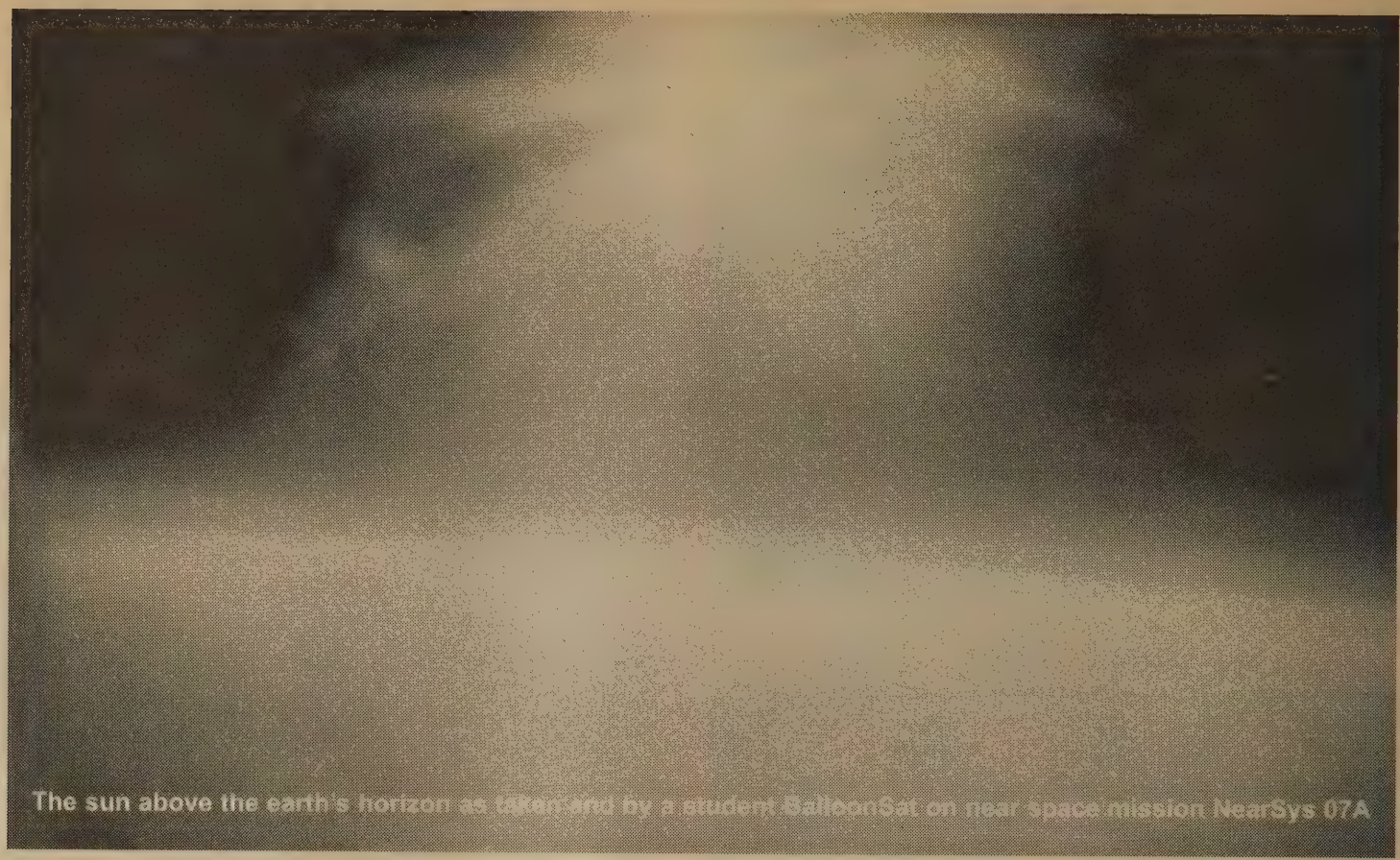


K4VXP - 6/18/2007 - 130 Miles
Paul Smith - Campbellsville, KY



WA8KQQ - 8/18/2007 - 72 Miles
Dale Waymere - Greenville, OH





The sun above the earth's horizon as taken and by a student BalloonSat on near space mission NearSys 07A

The Flight of NearSys 07A and
An Introduction How To Make BalloonSat Airframes

By Paul Verhage - KD4STH Email: Paul.Verhage@boiseschools.org
5720 3rd Ave.
Nampa, ID 83686

I spent the beginning of my summer landscaping my yard and working with kids at the Aeronautical Career Education (ACE) Academy in Boise. The Idaho Division of Aeronautics hosts the academy every summer for junior high school students. The academy introduces kids to the wide range of aeronautical activities available in Idaho. Since I'm a school teacher, I like to spend some time teaching a BalloonSat class to the ACE students.

ACE began on Monday, June 25th, with my BalloonSat class. That day, students saw a BalloonSat and learned how they reach near space. They then found out what it's like in near space through charts and videos. I think these images of near space are particularly motivating to kids because they show the curvature of the earth and the blackness of space. After my introduction, the ACE Academy broke up into three teams to construct and test BalloonSats.

Traditional BalloonSats

Before explaining how I teach people to build BalloonSat airframes, let me briefly explain how they're traditionally built. First, you should know that BalloonSats are just one of many introductions to spacecraft design for college students. Another popular method is the CanSat, an amateur rocket launched satellite inside a cola can. BalloonSats differ from CanSats because they reach higher altitudes on weather balloons.

Most BalloonSat airframes consist of glued 3/16 inch thick foamcore. Foamcore is a paper covered Styrofoam sheet that you've probably seen backing art work. The paper backing concerns me because it's not water proof. I've also discovered that foamcore is heavier and provides less insulation than my recommended alternative material.

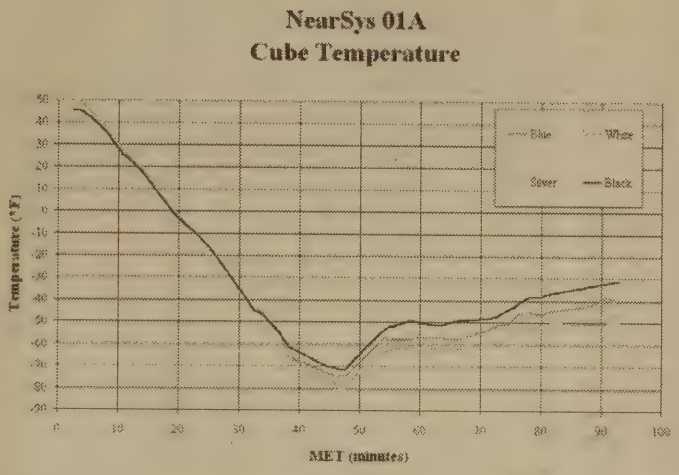
Foamcore is typically assembled using hot glue, silicon glue, or JB Weld. Hot glue is great, as it sets fast. However, JB Weld and silicon glue take longer to set, and that slows down the construction of the BalloonSat airframe. When construction is slow, there's a greater chance for airframe sides to shift before the glue sets, resulting in a warped airframe. After gluing the foamcore sides together, students cover the exterior of their airframe with aluminum tape. The tape is thick aluminum foil with a sticky backing, and it is great stuff for sealing the seams of duct work.

A chain of BalloonSats rides into near space on a single cord. Since the cord runs through the center of each BalloonSat, there's a plastic tube running through the center of each BalloonSat. By passing the cord through a plastic tube, the cord can't cut or abrade the foamcore airframe. BalloonSats have a hatch that allows students to open the BalloonSat at the launch site and start the experiments inside. Normally strip of glued Velcro patches keep the hatch closed.

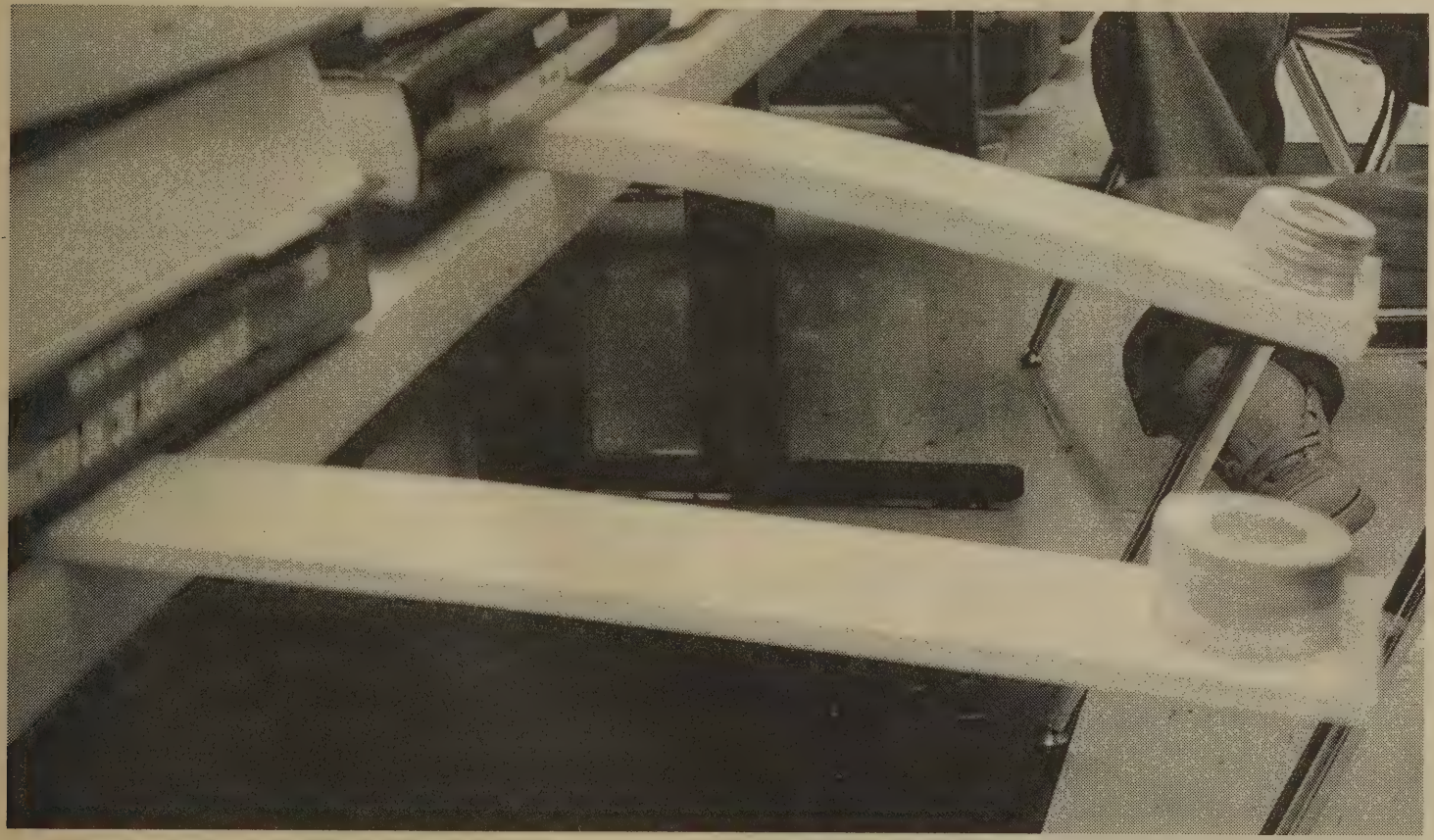
My Preferred BalloonSat Design

My design is a bit different from what I described above. I prefer that BalloonSat airframes be constructed from ½ inch thick Styrofoam sheeting. This is the material used to insulate the outside surfaces of homes (as opposed to fiberglass batting inside the walls). Compared to foamcore, half inch thick Styrofoam has more give and less stiffness. The chart below shows that foamcore flexes very little until it catastrophically fails. Styrofoam on the other hand flexes much further and doesn't fail until an additional 12% more weight is added to it. This should mean that Styrofoam airframes survive rough landings with less damage than foamcore.

Instead of aluminum tape, I recommend covering the airframe in colored plastic tape. This is the tape that covers many Styrofoam gliders. Per square inch, the tape is a lot lighter than aluminum and it comes in a variety of colors. The choice of color gives BalloonSat teams a lot of options in decorating their airframe. However, it's the ability of the darker colors to keep the airframe warmer that's most important. To generate the chart below, I flew four identical cubes of Styrofoam into near space. The only difference between them was their color. The cubes started at the same internal temperature. As the mission progressed though, the black cube warmed faster than the others did until it was 17 degrees hotter than the next warmest cube (the bare blue cube).



Four identical two inch cubes where used to generate these results.

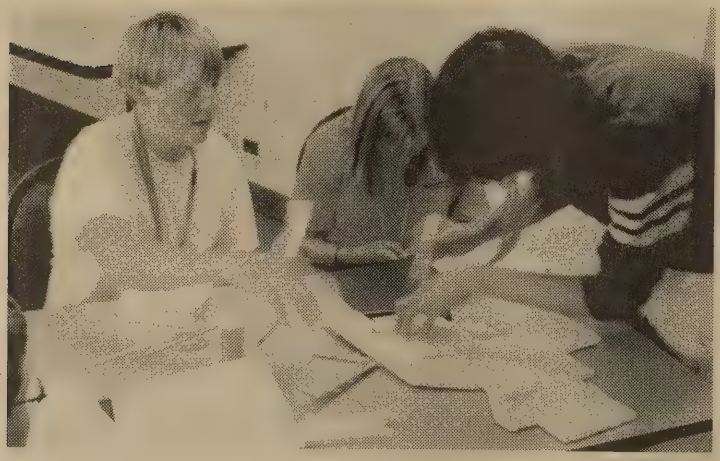


This test was performed on 16 inch long beams that were two inches wide. Six inches of each beam was supported on the table and ten inches overhung the table.

In another comparison, I weigh two completed airframes, one was traditional and the other was my design. A traditional foamcore airframe four inches across and covered in aluminum tape weighed 82 grams. While my modified half inch thick Styrofoam airframe covered with plastic tape weighed only 58 grams. That reduction in weight permits experiments to be 5% heavier in the half inch Styrofoam airframe.

Rubber bands keep the hatch on my modified airframe, and not tape or Velcro as with traditional BalloonSats. Rubber bands keep the hatch securely attached to the airframe, while at the same time, making it faster and easier to open and close the hatch at the launch site. There are short wooden dowels glued to the airframe that the rubber bands wrap around when closing the hatch.

Instead of using a single cord and plastic tube, I have people build their BalloonSats using four plastic tubes for four load lines. The tubes are glued to channels cut into the Styrofoam and do not run through the open volume of the airframe. The benefits of using four load lines to carry the chain of BalloonSats are two fold. First, the extra lines keep the BalloonSats steadier as they can't rock and spin around as much with the tension the other line provides. This result is better photographs with less blurring. Second, the load lines now run through the walls of the airframe. This leaves a larger open volume inside the airframe. It's easier to fit experiments into one large open room, than into one with a central support.

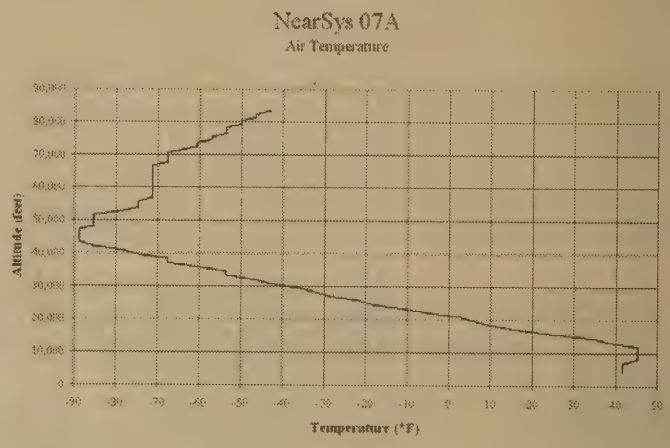


One of the ACE 2007 teams busy building a BalloonSat.

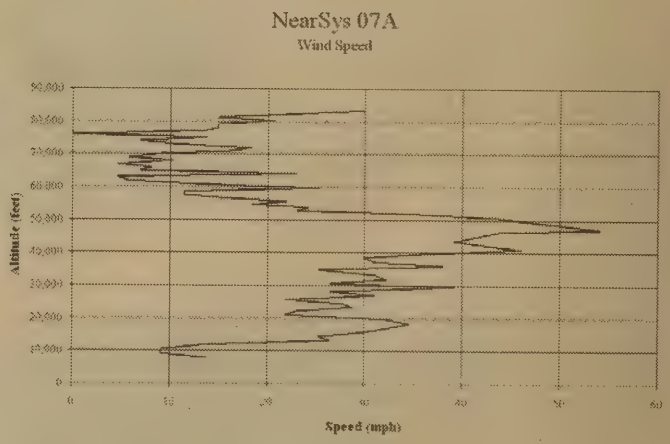
Now Back to ACE 2007

On Monday, each team built their BalloonSat using my design variation. The BalloonSats were large enough to hold a Hobo data logger, a camera, and its electronic timer. On Tuesday, tests of each BalloonSat verified they'd stay together when dropped and that their camera and camera timers were easy to access and start. There was one final test for fun. Each BalloonSat loaded inside a thermal test chamber to see how warm they would keep when exposed to dry ice.

Three of the four chase crew. It took longer to find an owner for permission to enter the field than it took to actually recover the mission.



The air temperature indicates that there was a temperature inversion beginning at 8,000 feet.



The winds were fairly mild. There was no jet stream to speak of during the mission.

The launch took place Wednesday morning near the town of Jordan Valley, Oregon. I advocated for a launch site in this area because it would bring the near spacecraft back down near my

house. The four people there (students stayed back in Boise for other activities) were able to fill and launch the balloon by themselves because there was virtually no surface wind.

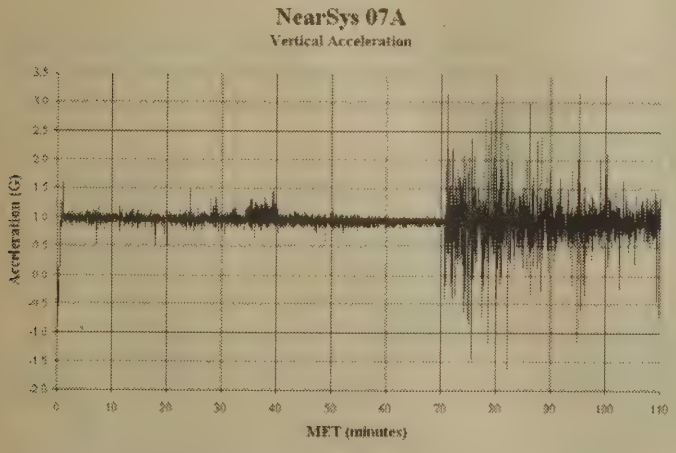
There was very little horizontal drift in the balloon after launch; it climbed nearly straight up. The balloon reached an altitude of 83,000 feet before bursting. By burst time, the chase team hadn't caught up to the balloon yet, so we weren't close enough to see it land. The landing site was on the top of Hat Butte and four miles from my house.

Above the ACE Academy BalloonSats, were tracking modules. Onboard them were a weather station, Geiger counter, and accelerometer. Charts from some of those instruments shown below.

The Pendant G Logger

This was the first near space mission to carry an OnSet Computing's Pendant G Logger. The G Logger is a really neat stand-alone three axis accelerometer that's a little larger than a book of matches. The G logger is programmed before a mission. It records acceleration data in up to three axes according to the settings you program into it.

The acceleration chart below shows that the balloon's ascent is jerkier at the beginning of the flight. That's when the balloon is climbing at its fastest rate. After 40 minutes, the balloon's ascent rate slows down a couple hundred feet per minute and the jerking became less. At 71 minutes the balloon burst. There's no free fall to create zero gee conditions. There's just too much bouncing around during descent.



This was a fun mission and I look forward to doing a class next year. If you'd like to learn more about BalloonSats, then check my new column in the Citizen Scientist. The online magazine is free at the Society of Amateur Scientists website, **www.sas.org/tcs**. You can also stay up to date on my near space missions at my website, **NearSys.org**.

Onwards and Upwards,
Paul

ATVQ

ATV On Balloons

I am new to the group, but have tinkered with ATV going back 25 years. Have some of the PC electronics analog stuff on 420.

I am interested in a ballon launch. I plan on taking a Space Shuttle model, large one, put a camera in it on ATV. I want to do this with a High School science class.

I've played with weather balloons and lifting antennas for Field Day.

The first of many questions I am sure is has anyone played with digital or FM ATV. I've seen a few pieces of hardware for FM.

My interest is getting the range that if successful getting the balloon up 100k ft. Seen some articles in ATVQ and write ups by WB8ELK.

Just looking for info.

73, Ron, N9EE/R

Analog will give you more range because you can still see the snowy picture. FM mode will be "blue screen" long before analog. You could put both on and compare them to see how far the FM mode goes before it craps out and watch the rest of the flight on analog.

Henry AA9XW

ATVQ

International ATV Net 1900 UTC Sundays On Baltimore ATV Repeater

On the Internet linked with the KB3LNN Baltimore ATV repeater!

Anyone on the internet can view at:
http://kb3lnn.camstreams.com/

All are welcome if you wish to join in please email me and call me on skype on the night.

73 Ian - G3ZHI

http://www.qsl.net/g3zhi - many ham radio links

http://www.ukirlp.co.uk

G4NJI IRLP 5200 Echolink 135909
Rotherham simplex 145.2875mhz

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ATVQ

Paramount to Drop Blu-Ray High-Def DVDs

By ALEX VEIGA

Paramount Pictures and DreamWorks Animation SKG Inc. will offer next-generation DVDs in the HD DVD format and drop support for Blu-ray, further complicating the race between the competing technologies.

Monday's announcement affects the upcoming DVD releases of the blockbusters ``Shrek the Third'' and ``Transformers,'' along with movies distributed by Paramount Pictures, DreamWorks Pictures, Paramount Vantage, Nickelodeon Movies and MTV Films.

Movies directed by Steven Spielberg, however, will continue to be released in both formats.

Paramount, which owns DreamWorks Pictures and handles home sales for the separate company DreamWorks Animation, previously released movies in both Blu-ray and HD DVD.

``Part of our vision is to aggressively extend our movies beyond the theater, and deliver the quality and features that appeal to our audience,'' said Brad Grey, chairman and CEO of Paramount Pictures, a unit of Viacom Inc.

``I believe HD DVD is not only the affordable high-quality choice for consumers, but also the smart choice for Paramount,'' he said.

The competition between Blu-ray and HD DVD has kept confused consumers from rushing to buy new DVD players until they can determine which format will dominate the market.

Until recently, many consumers were able to defer the choice because players have been so expensive. But prices have been slashed by about half - Sony Corp.'s Blu-ray player now sells for $499, and Toshiba Corp.'s cheapest HD DVD player sells for $299, with both likely to include as many as five free movies as an incentive.

Jeffrey Katzenberg, CEO of DreamWorks Animation, said consumers seeking to switch to high-definition DVDs will be enticed by the movies available for HD-DVD players. He added the lower price for the Toshiba devices will appeal to the family market.

``It's a game-changer, what they're doing, and it's why we decided to throw in with them,'' Katzenberg said.

Standalone HD DVD players have a bigger slice of the market than Blu-ray players. But when you count Sony's PlayStation 3 game console, which comes with a Blu-ray drive, there are more Blu-ray players in U.S. homes.

Rob Moore, president of Paramount Worldwide Distribution, said market data shows that people who own gaming consoles buy fewer movies than those who invest in a movie-only player.

The Blu-ray Disc Association trade group did not immediately return an e-mail seeking comment.

Blu-ray discs can hold more data - 50 gigabytes compared with HD DVD's 30 GB - but the technology requires new manufacturing techniques and factories, boosting initial costs.

HD DVDs, on the other hand, are essentially DVDs on steroids, meaning movie studios can turn to existing assembly lines to produce them in mass.

Studios and retailers have been choosing sides in recent months.

With Paramount dropping Blu-ray support, Time Warner Inc.'s Warner Bros. remains the only major studio releasing movies in both formats.

``Spider-Man 3'' will only be available in the Blu-ray DVD format when it is released by Sony Pictures, while people with Blu-ray players won't be able to enjoy the action-thriller ``The Bourne Ultimatum,'' which Universal Pictures will release only in HD DVD.

The Blu-ray format recently got a big boost as Blockbuster Inc. announced it would stock only Blu-ray titles when it expands its high-def DVD offerings this year.

Target Inc., the nation's second-largest retailer, said it will only sell Blu-ray DVD players in its stores in the fourth quarter.

Sony Corp.'s Sony Pictures, News Corp.'s Twentieth Century Fox, The Walt Disney Co., and Metro-Goldwyn-Mayer are releasing only in Blu-ray.

Universal, owned by General Electric Co., backs HD DVD exclusively.

ATVQ

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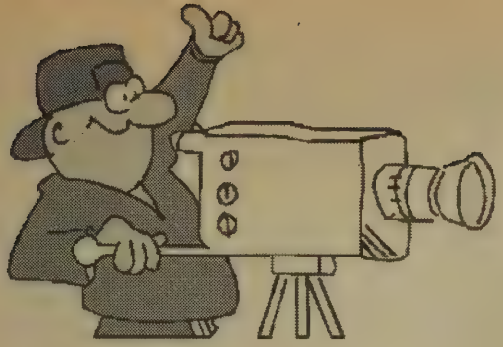

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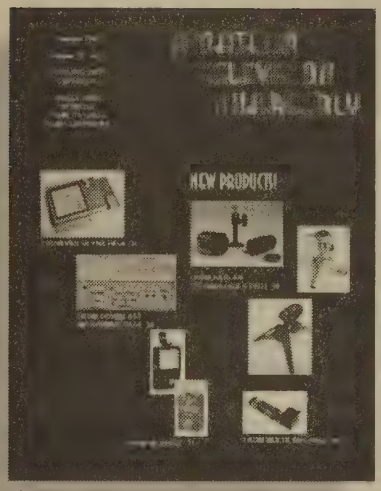
3 years	$55	$61	$84
4 years	$71	$80	$111
5 years	$87	$99	$136
Life	$399	$439	$579



ATV Secrets Vol I & II On CD

ATV Secrets is a great place to start your ATV adventure! Volume I has 64 pages, tightly packed with information covering all aspects of getting started, where to find activity,equipment, how to DX, and answers frequently asked questions about power, antennas, vestigial sideband operation and more. Everything the beginner in ATV needs!

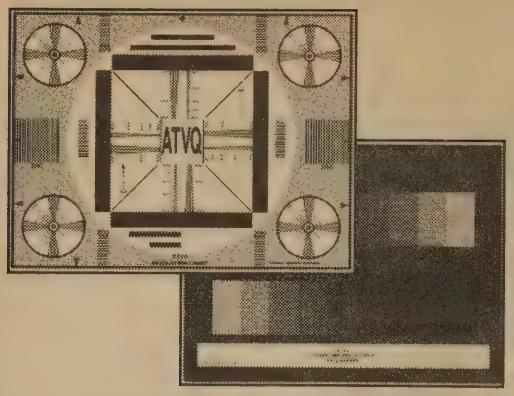
Volume II is a mammoth book with 292 pages of technical material. More than 40 authors present over 90 technical projects and theory topics to fully acquaint anyone from novice to expert in the how and what of TV, video, and ham TV. Divided into 11 chapters, the book presents tested projects for all areas of interest in ham TV including antennas, amplifiers, repeaters, receivers, transmitters, video accessories, and more!

Volume II is sold out in the paper version, but available on CD.

ATV Secrets Volume One (paper) $8.95
Shipping USA - $4.50

ATV Secrets I & II on CD $25.00
Shipping USA - $6.00

FULL COLOR TEST CHART



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RESOLUTION
GREY SCALE
REGISTRATION

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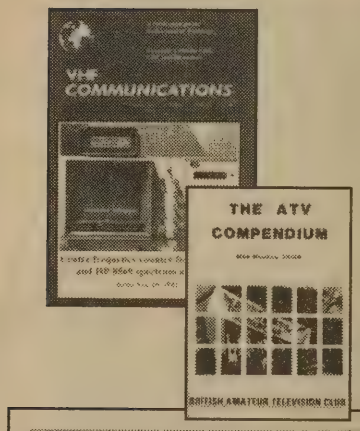

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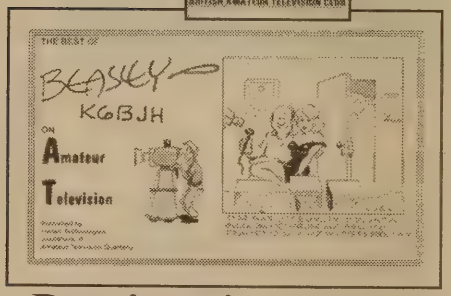

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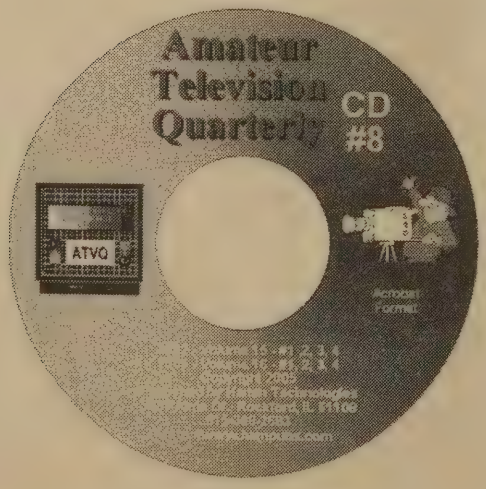

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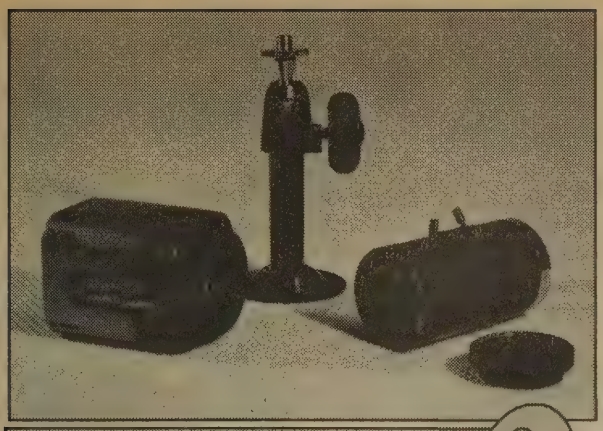

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420 Line
1.0 Lux - F1.2
1 Vp-p 75 Ohm
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S/N Ratio - More than 46 db
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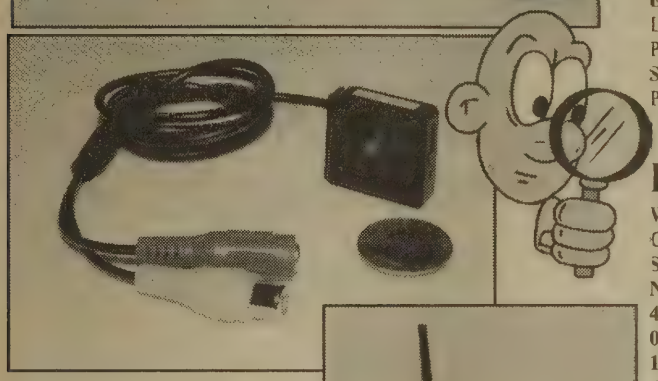
Power - 12V±10% DC - 100 ma.
Small size - 40x40x54mm
Power supply and cables not included.

Complete package Only
$119.00



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NTSC
420 Line
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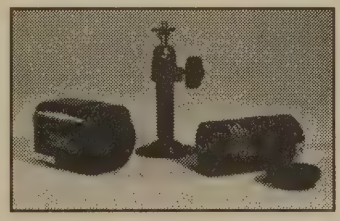
1 Vp-p 75 Ohm
Auto White Balance
S/N Ratio - More than 46 db
Electronic Shutter - 1/60-1/1000,000 Sec
Lens - C/CS Mount- 6-15 mm - f1.4
Power - 12V±10% DC - 100 ma.
Small size - 40x40x54mm
Power supply and cables not included.

Complete package Only
$169.00



Minature Pinhole Color Camera

Color CCTV Camera - DV-3225CP1
Sharp 1/3" CCD
NTSC - 420 Line
1.0 Lux - 1 Vp-p 75 Ω
Auto White Balance
S/N Ratio - More than 46 db
Electronic Shutter - 1/50-1/100,000 Sec
3.7 mm cone pinhole lens
Power - 12V±10% DC - 100 ma.
Small size - 25x25 mm
Power supply and cables not included.

Your choice
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Plus shipping & tax in Illinois

Minature Wireless - 2.4 GHz Color Camera

Color CCTV Camera - DV WX-3334C
Four Frequencies on 2.4 GHz
Sharp 1/3" CCD - NTSC - 420 Line
1.0 Lux - 1 Vp-p 75 Ω
Auto White Balance
S/N Ratio - More than 46 db
Electronic Shutter - 1/50-1/100,000 Sec
3.6 mm board lens
Power - 12V±10% DC - 100 ma.
Small size - 34x34 mm
Power supply and cables not included.

Water-Proof Color Camera

Color CCTV Camera - DV-262CW
Sharp 1/3" CCD
NTSC
420 Line
1.0 Lux
1 Vp-p 75 Ω
Auto White Balance
S/N Ratio - More than 46 db
Electronic Shutter - 1/50-1/100,000 Sec
6.0 mm - F1.2 lens
Power - 12V±10% DC - 100 ma.
Small size - 25x25 mm
Power supply and cables not included.

$119.00
Plus shipping & tax in Illinois

If in Illinois - add 7.25% tax
Shipping in USA $10.00 per camera, cable, tripod combination

12 Volt - 300 ma. Wall Transformer
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50 foot $19.95

Mini Tripod Folds to fit in pocket
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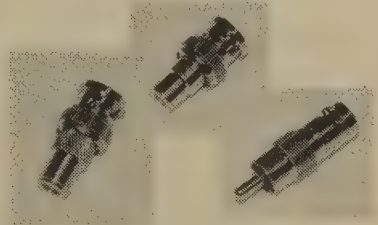

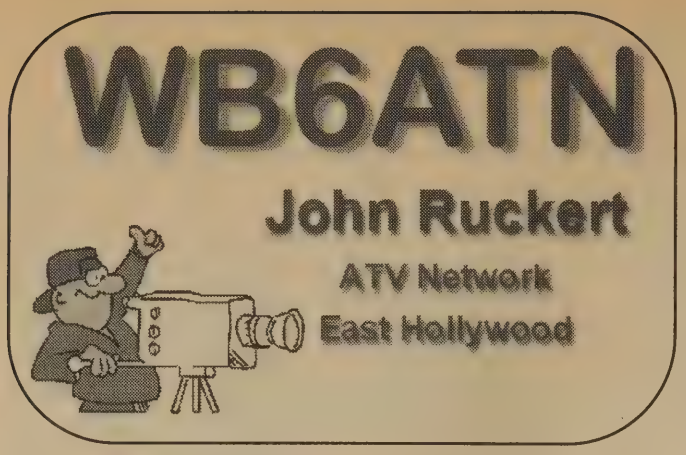

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Signature _____

ATV Contest 2007

By: Gene Harlan - WB9MMM Email: ATVQ@hampubs.com
5931 Alma Dr.
Rockford, IL 61108

ATV Contest *2007* - Home			
Rank	CALL	MILES	POINTS
1	NR8TV	7770	15540
2	N9XHU	6124	13700
3	K9SM	4123	12670
4	WB8LGA	3448	7404
5	W8ILC	3500	7000
6	KA9EGM	2650	5300
7	WU8O	2123	4678
8	K9IDQ	334	668

ATV Contest *2007* - Mobile			
Rank	CALL	MILES	POINTS
1	KC9BIE	715	1430

Another contest under our belt. A few band openings, but never as many as we would like to see. It was fun seeing KA9UVY one day as mentioned in the last issue.

Overall, the total number of miles and points are down from last year. I printed both this years and last years ranking below. This is the first time that the winner of the contest will not get the plaque at the Litchfeild, Illinois banquet!

Congratulations to Dave Kibler, NR8TV, this years first place finish!

NR8TV
Dave Kibler - EM89hh

Worked 5 sates including Ohio, Michigan, Indiana, Illinois, and Kentucky. Farthest contacts:

W9ZIH - 340 miles
N9DXU - 335 miles

ATV Contest *2006* - Home			
Rank	CALL	MILES	POINTS
1	KA9UVY	10,577	21,154
2	N9XHU	4,630	9,260
3	NR8TV	3,905	7,810
4	KA9EGM	3,648	7,296
5	W8ILC	2,082	4,164
6	K9SM	1,851	3,702
7	WU8O	1,792	3,646
8	K9IDQ	75	150

Most consistent distant signal: KA9UVY - 304 miles

List of equipment:

70cm ATV
P.C. Electronics TC70-20S
TE Systems brick
Henry 2004-A
(2) K1FO yagi's
SSB mast mount pre-amp and sequencer

2 meters
FT-736R
(2) Mosley 14 element beams
Teltec 2 meter brick
Mast mount pre-amp

N9XHU
Leonard McWhorter - EM59et

837 N. Hill St.
Springfield, IL. 62702-6229 USA
mcwhortera@insightbb.com

Total Miles 6124
Total Points 13700
Total States Worked 5 IL., IN., KY., MO., OH.

NR8TV HOME

STATION WORKED	REPORT SENT	REPORT RECEIVED	UTC	DATE	FREQUENCY	Grid Sw.	Miles	Points
KA9UVY	P2	P1	01:29	6/1/2007	70cm	EM58ng	305	610
WU8O	P3	P3	01:08	6/2/2007	70cm	EN80ic	54	108
W8ZCF	P3	P2	00:15	6/3/2007	70cm	EM79tb	56	112
KB8GUE	P5	P5	11:34	6/3/2007	70cm	EM89fi	9	18
W9NTP	P2	P2	11:56	6/3/2007	70cm	EM79ek	120	240
W8RVM	P5	P5	12:18	6/3/2007	70cm	EM79xw	55	110
KB9JGE	P3	P3	12:23	6/3/2007	70cm	EN70mb	98	196
KC8OVP	P3	P3	01:00	6/6/2007	70cm	EM88it	34	68
WA9EEI	P3	P3	11:50	6/10/2007	70cm	EM79ah	138	276
K9KLM	P2	P3	11:52	6/10/2007	70cm	EM79fe	116	232
WB8LGA	P4	P4	11:56	6/10/2007	70cm	EN80oj	80	160
W8SSH	P3	P4	11:58	6/10/2007	70cm	EN82aa	189	378
KB8YMQ	P5	P5	12:28	6/10/2007	70cm	EN88ic	54	108
W8ILC	P4	P3	01:12	6/11/2007	70cm	EM79wu	54	108
K4VXP	P4	P3	12:07	6/18/2007	70cm	EM77hi	173	346
W4HTB	P1	P2	12:12	6/18/2007	70cm	EM66tx	229	458
K4NQV	P1	P1	11:40	6/23/2007	70cm	EM66sx	232	464
NO8I	P3	P3	11:05	6/24/2007	70cm	EM79wu	54	108
KB8OFF	P2	P2	20:31	6/24/2007	70cm	EM79wr	49	98
WB8DZW	P3	P4	01:34	6/30/2007	70cm	EN80ka	50	100
WB8LGA	P3	P3	03:12	7/1/2007	70cm	EN80oj	80	160
K9KLM	P1	P2	10:59	7/1/2007	70cm	EM79fe	116	232
KA9UVY	P2	P2	01:43	7/3/2007	70cm	EM58ng	305	610
W8RRF	P4	P4	02:07	7/3/2007	70cm	EM89ot	46	92
KC8LMI	P2	P2	03:21	7/4/2007	70cm	EN72tj	219	438
N9XHU	P1	P2	04:23	7/4/2007	70cm	EM59et	335	670
KC9BIE	P1	P2	01:45	7/13/2007	70cm	EN80mf	68	136
KA8LWR	P1	P1	00:29	7/26/2007	70cm	EN80mt	105	210
WA8KOQ	P1	P1	00:58	7/26/2007	70cm	EN70qc	86	172
K8BSM	P1	P1	01:03	7/26/2007	70cm	EM79wq	47	94
K8GCS	P5	P4	01:05	7/26/2007	70cm	EM79wq	47	94
KA9UVY	P1	P2	01:31	8/3/2007	70cm	EM58ng	305	610
KA8HBT	P3	P3	01:47	8/3/2007	70cm	EM79ut	59	118
WB8LGA	P5	P4	02:01	8/3/2007	70cm	EN80oj	80	160
W9NTP	P5	P5	8/5/07	8/5/2007	70cm	EM79ek	120	240
KB9JGE	P4	P4	11:21	8/5/2007	70cm	EN70mb	98	196
W4HTB	P2	P1	02:38	8/7/2007	70cm	EM66tx	229	458
WA8KQQ	P1	P3	00:53	8/8/2007	70cm	EN70qc	86	172
K8JRG	P3	P3	11:27	8/11/2007	70cm	EN90oa	146	292
K9KLM	P5	P5	11:38	8/11/2007	70cm	EM79fe	116	232
KC4WEN	P1	P1	11:53	8/11/2007	70cm	EM67sa	230	460
K4VXP	P3	P3	12:18	8/11/2007	70cm	EM77hi	173	346
KC8LMI	P2	P3	15:46	8/11/2007	70cm	EN72tj	219	438
N9XHU	P2	P2	11:51	8/12/2007	70cm	EM59et	335	670
W9ZIK	P4	P4	02:38	8/14/2007	70cm	EN51nw	341	682
K3SIW	P4	P4	02:39	8/14/2007	70cm	EN52ua	318	636
K4VXP	P3	P3	02:48	8/14/2007	70cm	EM77hi	173	346
NK9M	P4	P4	03:02	8/14/2007	70cm	EN51up	384	608
WA9EEI	P4	P3	11:24	8/14/2007	70cm	EM79ah	138	276
K4NQV	P3	P2	11:40	8/14/2007	70cm	EM66sx	232	464
KC4WEN	P2	P1	11:45	8/14/2007	70cm	EM67sa	230	460
KA8LWR	P5	P4	01:42	8/15/2007	70cm	EN80mt	105	210
K8AEM	P5	P4	01:47	8/15/2007	70cm	EM89ox	55	110
WB8CJW	P5	P5	02:58	8/15/2007	70cm	EN80id	60	120
KA8MIB	P5	P5	23:58	8/29/2007	70cm	EM89ic	15	30
							7778	15540

2 Meters
YAESU all mode transceiver FT 847
MIRAGE B2516G, 160 Watt amplifier
LMR 600 feed line
Antenna CUSHCRAFT A148-20T vertical and horizontal Yagi at 55 feet
Antenna 80 Meter Inverted V for 75 Meters

70 CM
RECEIVER
P. C. Electronics down converter TVC4G
Preamp 16 db
P. C. Electronics TC70-20 transceiver
Preamp 16 db
2 SHARP 13 inch color cable ready televisions
2 ZENITH 9 inch color cable ready television
1 EMERSON 5 inch color set hooked to Bandpass Filter
Antenna M2 440-21 ATV Yagi at 55 feet.
LMR 600 feed line

TRANSMITTER
Homebrew B. T. Bryant (K9KKL)
Blonder Tongue AM 60-550 Agile modulator with a P. C. Electronics 20 Watt brick (10 Watts with video)
P. C. Electronics TC70-20 transceiver (10 Watts with video)
Homebrew tube amplifier 4CX250B 100 Watts with video. Built by Bill Bryant (K9KKL)
Computer driven slide with call. Black letters on white background
Antenna M2 440-21 ATV Yagi at 55 feet.
LMR 600 feed line

23 cm
RECEIVER and TRANSMITTER
YAESU FT 736R with 1.2GHz module (10 Watts)
YAESU TV 736 modulator and demodulator AM TV Video and Sound
Antenna 43 element loop at 57 feet
7/8 Hard Line feed line

ACCESSORIES
GO-VIDEO DVD and VHS tape player and recorder
HYUNDAI CO1120 auto electronic switcher
RCA Small Wonder cam recorder

Leonard McWhorter, N9XHU

K9IDQ
Ben Kiningham EM59bw

Again, as a courtesy to the contest participants, I'm sending in the very few contacts I had time to make. It seems as though retirement, family needs, and other issues have taken a time 'toll' on some of us. It's basically to confirm the contacts for your wonderful annual contest.

It was wonderful to see a few of my ATV friends on the air - and to chat with a number of others when conditions were down.

I was using a homebrew ATV very low power transceiver into a 100 watt amp with about 20 watts output, that is when it did not get too hot.

The beam is about 68 feet with 3/4" 72 ohm computer coax feeding it over 300' from the shack, just above the trees.

I do sense that competition was very keen among some of those ATV'ers that I know and hear on 2 meters.

WU8O
Tom Walter - EN80ic

Well, what can I say about this year? At least I worked KA9UVY BEFORE the end of the contest this time. It really wasn't that bad this year. This is my second best log out of four.

Tom wu8o Plain City, Ohio

N9XHU MOBE

STATION WORKED	REPORT SENT	REPORT RECEIVED	UTC	DATE	FREQUENCY	Grid Sw.	Miles	Points
K9KKL	P5	P5	02:15	6/2/2007	70cm	EM59ds	5	10
KA9UVY	P2	P1	02:48	6/2/2007	70cm	EM58ng	113	226
AA9MY	P2	P1	13:38	6/2/2007	70cm	EN50fn	49	98
K9SM	P2	P2	01:08	6/5/2007	70cm	EM59ee	43	86
KA9EGM	P1	P1	11:38	6/10/2007	70cm	EM58km	93	186
W9ZIM	P1.5	P3	01:48	6/16/2007	70cm	EN51nw	151	302
W4HTB	P2	P2	13:48	6/16/2007	70cm	EM66tx	263	526
K4NQV	P2	P1	13:51	6/16/2007	70cm	EM66sx	260	520
W9NTP	P2	P1	12:09	6/20/2007	70cm	EM79ek	214	428
KB9JGF	P1	P1	12:10	6/20/2007	70cm	EN70mb	248	496
WA9IZV	P2	P2	13:18	6/20/2007	70cm	EM58tj	118	236
WA9EUN	P3	P4	04:25	6/27/2007	70cm	EN51rq	141	282
KB9WLM	P5	P5	12:31	6/29/2007	70cm	EN40xn	56	112
KA9UVY	P2	P2	02:56	7/1/2007	70cm	EM58ng	113	226
KA9EGM	P1	P1	03:02	7/1/2007	70cm	EM58km	93	186
N9RF	P2	P2	11:41	7/1/2007	70cm	EN52qf	174	348
WA9IZV	P3	P3	12:71	7/1/2007	70cm	EM58tj	118	236
N9JGE	P5	P5	02:17	7/2/2007	70cm	EM59ds	5	10
NE8TV	P1	P2	04:28	7/4/2007	70cm	EM89hh	335	670
W9ZIM	P5	P5	13:23	7/6/2007	70cm	EN51nw	151	302
K0PFX	P1	P2	13:21	7/12/2007	70cm	EM48sr	87	174
K9SM	P2	P2	18:25	7/17/2007	23cm	EM59ee	43	258
KB9WLM	P1	P1	20:41	7/17/2007	23cm	EN40xn	56	336
KA9UVY	P1	P2	01:37	8/1/2007	70cm	EM58ng	113	226
W9NTP	P1	P1	12:10	8/1/2007	70cm	EM79ek	214	428
KA9EGM	P2	P2	12:30	8/1/2007	70cm	EM58km	93	186
W9ZIM	P3	P5	12.55	8/1/2007	70cm	EN51nw	151	302
KA9UVY	P2	P2	13 18	8/1/2007	23cm	EM58ng	113	678
WA9IZV	P3	P2	14:35	8/2/2007	70cm	EM58tj	118	236
K0PFX	P2	P3	14:41	8/2/2007	70cm	EM48sr	87	174
N9RF	P2	P2	11:32	8/11/2007	70cm	EN52qf	174	348
N9ABR	P1	P2	11:36	8/11/2007	70cm	EN51ge	95	190
KD8Z	P4	P5	13 12	8/11/2007	70cm	EM48qs	89	178
NE8TV	P2	P2	11:48	8/12/2007	70cm	EM89hh	335	670
W8ZCF	P2	P2	02:33	8/14/2007	70cm	EM79tb	285	570
W9ZIM	P4	P2	03:31	8/14/2007	23cm	EN51nw	151	906
NK9M	P4	P4	03:46	8/14/2007	70cm	EN51up	144	288
KB9JGF	P1	P1	04:15	8/14/2007	70cm	EN70mb	248	496
W4HTB	P1	P1	12:20	8/17/2007	70cm	EM66tx	263	526
K4VXP	P3	P2	12:22	8/17/2007	70cm	EM77hi	285	570
N3VL	P2	P2	13:17	8/17/2007	70cm	EM57no	157	314
K9IDQ	P5	P5	01:11	8/31/2007	70cm	EM59ww	80	160
							6124	13708

K9SM HOME

STATION WORKED	REPORT SENT	REPORT RECEIVED	UTC	DATE	FREQUENCY	Grid Sw.	Miles	Points
KA9UVY	P1	P1	0105	6/05/2007	70cm	EM58ng	75	150
N9XHU	P2	P2	0108	6/05/2007	70cm	EM59et	43	86
W8BQY	P4	P4	1307	6/09/2007	70cm	EM48rs	57	114
K0PFX	P4	P4	1308	6/09/2007	70cm	EM48sr	55	110
KA9ECM	P2	P1	0240	6/10/2007	70cm	EM58kn	53	106
WB9LHD	P4	P3	1404	6/12/2007	70cm	EM59et	43	86
KA9UVY	P1	P1	0324	6/15/2007	23cm	EM58ng	75	450
AA9MY	P4	P4	1235	6/16/2007	70cm	EN50fm	92	184
W9ZIH	P4	P5	1257	6/16/2007	70cm	EN51nw	191	382
W9ZIH	P4	P4	1258	6/16/2007	23cm	EN51nw	191	1146
KB9WLM	P4	P2	1300	6/29/2007	70cm	EN40xn	97	194
KA9UVY	P4	P3	0251	7/01/2007	70cm	EM58ng	75	150
KA9UVY	P2	P2	0253	7/01/2007	23cm	EM58ng	75	450
AA9MY	P1	P1	0304	7/01/2007	70cm	EN50fm	92	184
K9KKL	P4	P4	0211	7/02/2007	70cm	EM59ds	40	80
N9ZGE	P4	P4	0212	7/02/2007	70cm	EM59ds	40	80
KB9SG	P4	P4	0125	7/03/2007	70cm	EM58hs	32	64
W9ZIH	P5	P4	1244	7/06/2007	70cm	EN51nw	191	382
W9ZIH	P4	P4	1246	7/06/2007	23cm	EN51nw	191	1146
KC9BIE/m	P1	P1	1308	7/06/2007	70cm	EM58mh	71	142
K0PFX	P2	P2	1251	7/08/2007	23cm	EM48sr	55	330
KB9WLM	P4	P2	1421	7/08/2007	70cm	EN40xn	97	194
N9XNU	P2	P2	1035	7/17/2007	23cm	EM59et	43	258
KB9WLM	P3	P3	0237	7/18/2007	23cm	EN40xn	97	582
KA9UVY	P3	P1	1232	7/31/2007	33cm	EM58ng	75	300
KA9UVY	P3	P2	0106	8/01/2007	70cm	EM58ng	75	150
KA9UVY	P3	P2	0145	8/01/2007	23cm	EM58ng	75	450
W9ZIH	P2	P2	1253	8/01/2007	70cm	EN51nw	191	382
WA9IZV	P2	P3	1305	8/02/2007	70cm	EM58tj	87	174
KA9UVY	P1	P2	1424	8/02/2007	33cm	EM58ng	75	300
K0PFX	P1	P1	1253	8/10/2007	33cm	EM48sr	55	220
WA9IZV	P3	P3	1247	8/11/2007	33cm	EM58tj	87	348
KB9WLM	P5	P5	1248	8/11/2007	70cm	EN40xn	97	194
KB9WLM	P5	P5	1249	8/11/2007	23cm	EN40xn	97	582
KD0Z	P4	P3	1300	8/11/2007	70cm	EM48qs	61	122
KD0Z	P1	P1	1310	8/11/2007	23cm	EM48qs	61	366
AA9MY	P5	P4	1312	8/11/2007	70cm	EN50fm	92	184
W9NTP	P5	P4	1305	8/17/2007	70cm	EM79ek	215	430
W8ZCF	P1	P1	1309	8/17/2007	70cm	EM79tb	282	564
N3VL	P1	P1	1422	8/17/2007	70cm	EM57no	116	232
N9RF	P3	P1	1238	8/18/2007	70cm	EN52qf	216	432
K9IDQ	P1	P2	1415	8/31/2007	70cm	EM59xw	95	190
							4123	12670

K9IDQ HOME

STATION WORKED	REPORT SENT	REPORT RECEIVED	UTC	DATE	FREQUENCY	Grid Sw.	Miles	Points
N9XHU	P5	P5	01:11	8/31/07	70cm	EM59et	15	30
K9KKL	P5	P5	01:13	08/31/07	70cm	EM59ds	14	28
KA9UVY	P2	P2	01:33	8/31/07	70cm	EM58ng	126	252
KA9UVY	P5	P2	13:02	8/31/07	70cm	EM58ng	126	252
K9SM	P2	P1	14:04	8/31/07	70cm	EM59ee	53	106
							334	668

KC9BIE
Shannon Hearst - MOBILE

EQUIPMENT USED:
P.C. ELECTRONICS TC70-10 TXCVR
TELETEC DXP-U150
SPECTRA 5" B/W TV
SANDISK ID'er

ANTENNA:
STACKED M2 HO LOOPS

TALK BACK / APRS:
KENWOOD D700A
BYONICS STAND ALONE GPS

ANTENNA:
DIAMOND NHR770NMO

Soap Box comments:
Only got to work one month of the contest period due to equipment issues and limited time here. Since I never got to make a trip to Bald Knob this year the highlight of the contest for me was working with the Ohio guys while on my vacation trip to New York. I added APRS this year to help stations track my mobile. Some took advantage of this and looked for me all the way. I applaud W8ZCF for his persistence and NR8TV for my best DX while in Ohio.

My best overall DX was with WB9LHD @ 113 miles. I worked 4 states this year but while traveling through many of them.

Recap

So, we would have liked to have more and better band openings, but that we have little control over. What we can do is to make sure our equipment is up to the job, have those yagi's ready, make sure the pre-amps are working, in my case make sure the amp is working (broken D1010 at the moment) and then do a lot of listening. Don't forget to watch the web sites that Bob lists in the NADX column. Not only the message board but the Tropo site as well, so you know when to look.

Don't wait wor next year. Keep making those contacts as the experience will help you in future contests.
Gene - WB9MMM - ATVQ

Say you saw it in ATVQ!

New Distance Record With Laser ATV! (DJ1WF)

In the night from April 4th to April 5th our distance record over 70 km from January 22nd 2007 was broken again. Tom DL9OBD and Wilfried DJ1WF settled it to 83.3 km, accompanied by Ludwig DO2LN. Sometimes noise free video with sound was transmitted into the IR laser ATV input (400 THz) at ATV repeater DB0TVH (Hannover, Germany). Our TX location was on the Harz mountains near Torfhaus.

Such enormous distances for laser ATV require a good view, and the video quality is fluctuating over time. At the start of our test transmissions some details of Hannover city were clearly visible through a telescope but faded away later. The TX location was situated within a reservation area, so the steep path to it was off-limits for motor-vehicles. We had to pack the equipment onto Toms cart and walked over 850 m length exhausting 120 m upwards. Pictures and videos under

ATVQ

http://www.mydarc.de/dj1wf/Laser/Harz/Harz.html

Digital ATV in Slovenia (Mijo K., S51KQ)

End of March 2007 we installed the DVB part of the S55TVA ATV repeater in Celje, Slovenia. Actually it was built 3 years ago, but due to lack of proper end amplifier, installation was postponed till yesterday. And now on, the S55TVA repeater is on the air in DVB on 1285MHz, as well in analog mode on 1250MHz SBC 6.50. Both on the same antenna with H polarization.

S55TVA Celje DVB-S TX
Frq (center): 1285.000 MHz , H pol.
SR : 6250
FEC : 7/8
MCPC: two channels (S55TVA-1 in S55TVA-2)
PWR : cca 9.5W DVB

Bit rates :

W8SLGA HOME

STATION WORKED	REPORT SENT	REPORT RECEIVED	UTC	DATE	FREQUENCY	Grid Sq.	Miles	Points
WU8O	P5	P2	4:45:04 PM	6/4/2007	70cm	EN80ic	33	66
WU8O	P3	P2	4:50:20 PM	6/4/2007	23cm	EN80ic	33	198
NR8TV	P4	P4	2:55:46 PM	6/10/2007	70cm	EM89hk	88	160
KB9JGF	P4	P4	2:56:34 PM	6/14/2007	70cm	EN70mb	116	232
W8ZCF	P4	P4	2:59:51 PM	6/14/2007	70cm	EM79tb	124	248
W8RVH	P5	P5	2:53:08 AM	6/16/2007	70cm	EM79mw	73	146
W8RVH	P1	P1	2:58:40 PM	6/16/2007	23cm	EM79mw	73	438
W8ILC	P2	P2	3:07:22 PM	6/27/2007	70cm	EM79wu	79	158
WB8CJW	P5	P5	2:57:40 PM	6/27/2007	70cm	EN80ld	21	42
KB8LWR	P5	P5	2:11:07 AM	6/27/2007	70cm	EN80md	30	60
W9NTP	P1	P1	2:12:04 AM	6/27/2007	70cm	EM79ek	164	328
WB8DZW	P3	P4.5	3:26:14 AM	6/29/2007	70cm	EN80ka	31	62
KB8SSM	P1.5	P3	3:38:56 AM	6/29/2007	70cm	EN80ma	27	54
KB8YMQ	P1	P1	4:39:33 AM	6/29/2007	70cm	EN80ic	33	66
W8ILC	P1	P1	1:00:29 PM	7/1/2007	70cm	EM79wu	79	158
NR8TV	P3	P3	3:20:24 AM	7/1/2007	70cm	EM89hk	88	160
KC8LMI	P1	P1	4:18:16 AM	7/4/2007	70cm	EN72tj	160	320
KB9JGF	P1.5	P2	1:15:05 PM	7/4/2007	70cm	EN70mb	116	232
W8ZCF	P5	P5	1:15:49 PM	7/4/2007	70cm	EM79tb	124	248
KB8GVE	P5	P5	1:11:30 PM	7/7/2007	70cm	EM89fi	82	164
KC9BIE	P1	P1	1:08:07 AM	7/13/2007	70cm	EM89jx	37	74
WB8CJW	P5	P5	1:25:45 AM	7/22/2007	23cm	EN80ld	21	126
K8PYQ	P5	P5	2:58:04 PM	7/27/2007	70cm	EN80qn	36	72
W8ZCF	P3	P2	1:38:43 AM	8/1/2007	70cm	EM79tb	124	248
W8ILC	P2	P1	1:10:57 AM	8/2/2007	70cm	EM79wu	79	158
NR8TV	P5	P4	2:59:56 AM	8/3/2007	70cm	EM89hk	88	160
KB9JGF	P1	P1	11:20:21 AM	8/10/2007	70cm	EN70mb	116	232
KC8LMI	P1	P1	1:14:33 PM	8/10/2007	70cm	EN72tj	160	320
KA9UVY	P2	P1	11:57:08 AM	8/14/2007	70cm	EM58ng	357	714
K4VXP	P2	P1	12:19:28 PM	8/14/2007	70cm	EM77kl	251	502
KB8OFF	P4	P3	2:14:51 AM	8/15/2007	70cm	EM79wr	84	168
W4HTB	P1	P3	2:27:16 AM	8/15/2007	70cm	EM66tx	305	610
W8DMR	P3	P2.5	5:55:50 PM	8/29/2007	70cm	EM89mx	38	60
KB8FLY	P1.5	P1.5	12:55:28 AM	8/30/2007	70cm	EM89ks	46	92
W9NTP	P3	P2	12:04:48 PM	8/31/2007	70cm	EM79ek	164	328
							3418	7404

KC9BIE MOBILE

Call	GRID	rpt snt	rpt rec'v	UTC	DATE	FREQ	MY GRID	MILES	POINTS
K9SM	EM59EE	P1	P1	13:08	7/6/2007	439.25	EM58MH	70	140
KA9EGM	EM59KM	P1	P1	17:00	7/12/2007	439.25	EM58PW	36	72
W8RVRH	EM79XW	P2	P1	1:03	7/13/2007	439.25	EM89IX	39	78
WB8LGA	EN80OJ	P1	P3	1:10	7/13/2007	439.25	EM89JX	36	72
KB8YMQ	EN80IC	P3	P3	1:18	7/13/2007	439.25	EN80KA	10	20
NR8TV	EM89HH	P1	P2	1:41	7/13/2007	439.25	EN80MF	67	134
K2CEC	FN02QS	P2	P1	22:31	7/13/2007	439.25	FN02OW	14	28
W8ILC	EM79WU	P1	P2	0:11	7/23/2007	439.25	EM89EN	33	66
WU8O	EN80IC	P2	P1	0:21	7/23/2007	439.25	EM89CV	30	60
W8ZCF	EM79TB	P1	P1	1:14	7/23/2007	439.25	EM79PU	57	114
KB9JGF	EM70MB	P1	P1	2:30	7/23/2007	439.25	EM79ET	39	78
N9TWH	EM57MT	P1	P1	21:57	7/29/2007	439.25	EM58NG	31	62
WA9IZV	EM58TJ	P2	P2	22:03	7/29/2007	439.25	EM58NG	28	56
K9KKL	EM59DS	P1	P1	12:22	7/31/2007	439.25	EM58NG	112	224
WB9LHD	EM59ET	P1	P2	12:23	7/31/2007	439.25	EM58NG	113	226
							TOTAL	715	1430

W8ILC MDMX

STATION WORKED	REPORT SENT	REPORT RECEIVED	UTC	DATE	FREQUENCY	Grid Sq.	Miles	Points
W8RVH	P5	P5	12:05	6/1/2007	70cm	EM79xw	7	14
W8ZCE	P3	P3	12:07	6/1/2007	70cm	EM79tb	56	112
WB8LGA	P3	P3	12:22	6/1/2007	70cm	EN80oj	79	158
W9NTP	P4	P3	12:58	6/1/2007	70cm	EM79ek	85	170
KB9JGF	P3	P3	12:58	6/1/2007	70cm	EN70mb	46	92
NB8I	P5	P5	13:00	6/1/2007	70cm	EM79wu	1	2
WW8O	P4	P1	13:01	6/3/2007	70cm	EN80ic	47	94
KR8MBT	P5	P5	00:58	6/7/2007	70cm	EM79ut	9	18
WA8KQQ	P4	P3	01:18	6/7/2007	70cm	EN70qc	31	62
KB8OEF	P5	P5	01:15	6/7/2007	70cm	EM79uc	8	16
W8GUC	P4	P5	01:25	6/7/2007	70cm	EM79vr	9	18
NR8TV	P4	P3	13:18	6/11/2007	70cm	EM89hh	54	108
K8EJM	P1	P1	01:55	6/14/2007	70cm	EM79ut	9	18
K8JRG	P2	P2	13:00	6/14/2007	70cm	EN90oa	177	354
KB8GUE	P4	P4	01:15	6/18/2007	70cm	EM89fi	46	92
K8STV	P2	P1	01:58	6/21/2007	70cm	EM79ui	35	70
K8BSM	P5	P5	01:52	6/21/2007	70cm	EM79wq	11	22
W8BI	P5	P5	14:08	6/23/2007	70cm	EM79wl	4	8
WB8LGA	P3	P1	12:00	7/1/2007	70cm	EN80oj	79	158
KB8YMQ	P4	P4	12:07	7/1/2007	70cm	EN80ic	47	94
KB8SSH	P1	P1	12:13	7/1/2007	70cm	EN80ma	63	126
N9RF	P4	P4	12:38	7/1/2007	70cm	EN52qf	286	572
W9ZIH	P4	P4	12:38	7/1/2007	70cm	EN51nw	287	574
K3SIW	P3	P3	12:32	7/1/2007	70cm	EN52na	264	528
KC8LMI	P3	P1	13:20	7/7/2007	70cm	EM72tj	175	350
KA8LWR	P1	P1	13:05	7/8/2007	70cm	EN80mt	90	180
K8GCS	P5	P5	18:08	7/13/2007	70cm	EM79wq	11	22
KC9BIE	P1	P1	00:14	7/23/2007	70cm	EM89en	33	66
K4VXP	P1	P1	12:20	7/31/2007	70cm	EM77hi	185	370
WB8LGA	P2	P1	12:19	8/2/2007	70cm	EN80oj	79	158
K9KLM	P4	P3	11:18	8/11/2007	70cm	EM79ie	88	176
W9NTP	P4	P4	11:47	8/11/2007	70cm	EM79ek	85	170
KA9UVY	P2	P1	12:35	8/11/2007	70cm	EM58ng	277	554
KC8LMI	P3	P3	03:55	8/14/2007	70cm	EM72tj	175	350
W9ZIH	P3	P1	04:15	8/14/2007	70cm	EN51nw	287	574
KA8LWR	P1	P1	02:25	8/15/2007	70cm	EN80mt	90	180
WB8DZW	P3	P1	02:34	8/15/2007	70cm	EN80ka	54	108
K8AEH	P1	P1	02:37	8/15/2007	70cm	EM89ox	71	142
WB8CJW	P2	P2	02:55	8/15/2007	70cm	EN80ld	60	120
							3500	7000

CH1 (primary repeater output) 6.0 Mbps
CH2 (currently sat down link) 3.9 Mbps

A few shots of modifications and installation
http://atv.hamradio.si/photo_album/S55TVA_QPSK/index.html
Building DVB encoder three years ago
http://atv.hamradio.si/DVB-ITEMS.HTM

AGAF ATV Meeting 2007 (DL4KCK)

On a sunny evening on May 4th first guests arrived in Wehningen/Elbe (eastern Germany), while the team around Guenther DM2CKB already had fixed the hall at the "Holm" Inn for lectures on Saturday morning. There were video cameras and a direction console where Rolf DJ9XF mixed video and sound for transmission via 10 GHz link by Harry DG1SUL to the digital ATV repeater DB0EUF near Lenzen. The small parabolic dish on a tubing mast was fine tuned in elevation by an adapted electric drill. On a big CRT monitor we were able to view the repeater´s digital output and sometimes via it´s linking DB0HEX on Brocken Mountain.

For the first lecture at 10.15h Guenther welcomed more than 40 guests, while the "lady´s program" took some wives out to a trip in the Elbe Meadows on a covered wagon. Wilfried, DJ1WF, and Tom, DL9OBD, from Hannover showed via beamer powerpoint pictures from their latest laser beam ATV (400 THz) record over 83 km distance. They brought an older laser ATV RX version for show which verified their year-long experience on this exclusive hobby section.

Then Guenter, DL9GMX, showed his handicrafts enthusiasm on the big screen and got a warm applause. Because of multi story buildings nearby he was not able to receive DB0HEX directly, so he constructed a private link repeater for both directions on a fire-watchtower in the woods near his QTH. That needed a solar panel power supply and many LNB- or amplifier modifications, and after relocation of DB0HEX a changeover to DB0EUF. For a laugh he ended with a picture of his mobile ATV antenna - a 2 m mesh parabolic dish mounted at the rear of his small car.

Rainer, DM2CMB, demonstrated automated radiation pattern and spectral measurements with his laptop computer and a network analyzer "HFM91" using different antennas. An old noisy rotor turned around while the live measuring curve appeared on the monitor screen. He provided some hints on short wiring between rf instruments and explained advantages of his homemade rf pads. All the time live video with call sign text captions was transmitted to DB0EUF.

After a lunch break Iwo, DG0CBP (ATV manager of DARC), described recent proceedings at his high-situated repeater DB0HEX on the Harz Mountains, where he made the first test transmissions with SR-Systems´ digital ATV modules. Pictures of icy aerials and outside video cameras proved the harsh winter conditions, but after a crash of a big commercially constructed dish the repeater team had to accomplish a relocation from the telecom tower to a lower building nearby. Under a huge fiberglass dome they were

able to utilize some old 4 m parabolic dish antennas for ATV links i.e. to DB0EUF and to Schneekopf Mountain.

Uwe, DJ8DW, gave an overview on DATV developments in Wuppertal with 4th generation boards including multiplexing of 5 programs, USB connectors and joystick control with a small LCD. This controlling feature is also part of a new variable up-converter for the 23, 13 and 9 cm band. The long awaited 70 cm GMSK receiver boards are progressing - Willi, DF5QC, has finished 14 rf modules, while 4 digital modules are ready for testing sessions. In a short discussion about "what next, ATV?" Uwe described several activities around the new restrictions on telecom tower locations all over Germany.

During the ATV meeting Uwe met for the first time face to face another leading DATV developer, Torsten, DG1HT, from Hamburg (his repeater DB0DTV, well known for it´s excellent live web interface, went qrt because of the DFMG restrictions). They discussed a better compatibility of both DATV TX systems (AGAF and SR-Systems) concerning GMSK modulation. Juergen, DJ7RL, and his wife came from Kiel and presented a new video CD in SVCD format with tips for ATV newcomers called "First Steps", which was suggested by ham radio friends from Finland. A following version will include the topics digital ATV, construction tips, antennas and laser ATV. E-Mail address: **jschaefer@ki.tng.de**

In the concluding AGAF convention Heinz, DC6MR, was reelected as chairman and Karl-Heinz Pruski as manager, while Uwe, DJ8DW, wanted to act only provisionally as second chairman, waiting for "fresh blood" as successor. After approval of a change in statutes the present members elected Uwe DJ8DW for the new president of AGAF e.V. He wants to maintain contacts to German authorities and amateur radio groups and to improve relations to foreign partner groups.

ATVQ

Translations by:
Kramer Klaus - DL4KCK
DL4KCK@t-online.de

KA9EGM HOME

STATION WORKED	REPORT SENT	REPORT RECEIVED	UTC	DATE	FREQUENCY	Grid Sq.	Miles	Points
W9TZB	P2	P2	02:20	6/1/2007	70cm	EM58nh	19	38
KA9UVY	P5	P5	02:25	6/1/2007	70cm	EM58ng	21	42
K9PEX	P1	P1	13:08	6/4/2007	70cm	EM48sx	73	146
WR9IZV	P2	P2	12:35	6/4/2007	70cm	EM58tj	41	82
K9SM	P2	P1	02:48	6/5/2007	70cm	EM59ee	53	106
N9XHU	P1	P1	11:30	6/16/2007	70cm	EM59et	93	186
AA9MY	P4	P3	13:08	6/16/2007	70cm	EN50fm	139	278
W9ZIK	P1	P1	03:23	6/18/2007	70cm	EN51nw	236	472
KB9SG	P1	P2	17:10	6/29/2007	70cm	EM58bs	44	88
AA9MY	P1	P1	02:55	7/1/2007	70cm	EN50fm	139	278
N9XHU	P1	P1	02:59	7/2/2007	70cm	EM59et	93	186
K9KKL	P1	P1	01:30	7/2/2007	70cm	EM59ds	91	182
KC9BIE	P2	P2	02:12	7/12/2007	70cm	EM58ng	21	42
N9ZGK	P1	P1	02:20	7/2/2007	70cm	EM59ds	91	182
W0DQY	P1	P1	13:48	7/2/2007	70cm	EM48rs	78	156
N3VL	P1	P1	03:58	7/4/2007	70cm	EM57no	64	128
KB9LMB	P2	P2	12:27	7/12/2007	70cm	EM59et	93	186
W9ZIK	P5	P5	12:53	7/12/2007	70cm	EN51nw	236	472
KB9WLN	P5	P5	12:53	7/12/2007	70cm	EN58bm	143	286
N9SMA	P1	P1	16:47	7/26/2007	70cm	EM57jx	37	74
W8ZCF	P1	P1	13:29	7/31/2007	70cm	EM79tb	259	518
N9XHU	P2	P2	12:31	8/1/2007	70cm	EM59et	93	186
W9ZIK	P2	P2	12:40	8/1/2007	70cm	EN51nw	236	472
WB9LHD	P2	P2	15:50	8/10/2007	70cm	EM59et	93	186
WB8FCK	P1	P1	13:26	8/12/2007	70cm	EM48sr	73	146
K9KKL	P2	P2	01:50	8/16/2007	70cm	EM59ds	91	182
							2650	5300

Call: WU8O **Grid: EN80ic** **Class: Home**

STATION WORKED	REPORT RECEIVED	REPORT SENT	UTC	DATE	FREQUENCY	GRID SQ	MILES	POINTS
KB8SSH	P3	P3	23:53	06/01/07	439.25	EN80ma	20	40
NR8TV	P3	P3	1:08	06/02/07	439.25	EM89hh	55	110
W8ILC	P4	P1	13:02	06/03/07	439.25	EM79wu	47	94
KB9JGF	P2	P2	13:05	06/03/07	439.25	EN70mb	88	176
WB8DZW	P4	P4	1:29	06/05/07	439.25	EN80ka	12	24
KB8YMQ	P5	P5	1:54	06/05/07	2398	EN80ic	2	20
KB8YMQ	P5	P5	1:55	06/05/07	439.25	EN80ic	2	4
WB8LGA	P5	P2	2:16	06/05/07	439.25	EN80oj	34	68
WB8LGA	P2	P2	2:18	06/05/07	1280	EN80oj	34	204
K8AEH	P4	P2	2:40	06/05/07	439.25	EM89ox	30	60
W8RRF	P2	P1	2:13	06/20/07	1280	EM89ot	35	210
WB8CJW	P5	P5	2:53	06/20/07	1280	EN80ld	15	90
KC8LMI	P2	P1	13:35	07/07/07	439.25	EN72tj	166	332
KA8LWR	P4	P1	13:40	07/07/07	439.25	EN80mt	51	102
KB8GUE	P5	P4	12:33	07/08/07	439.25	EM89fi	53	106
KB9JGF	P4	P2	12:43	07/08/07	439.25	EN70mb	88	176
KB8SSH	P1	P2	2:17	07/22/07	1280	EN80ma	20	120
KC9BIE	P4	P1	0:21	07/23/07	439.25	EM89cv	28	56
W8RVH	P5	P5	0:57	07/23/07	439.25	EM79xw	41	82
K8PYQ	P3	P2	1:00	07/23/07	439.25	EN80gn	32	64
W8ZCF	P5	P4	11:32	07/23/07	439.25	EM79tb	91	182
KA9UVY	P2	P1	13:09	08/10/07	439.25	EM58ng	325	650
KC8LMI	P4	P2	13:23	08/10/07	439.25	EN72tj	166	332
WB9LHD	P2	P2	11:36	08/17/07	439.25	EM59et	336	672
W9NTP	P4	P4	11:38	08/17/07	439.25	EM79el	129	258
K9KLM	P2	P1	11:45	08/17/07	439.25	EM79fe	135	270
KB9JGF	P5	P5	12:00	08/17/07	439.25	EN70mb	88	176
			OH, IN,IL and MI					
		Total Mile	2123		Total Points		4678	

HABITAT SkyLab
10 Years And Still Going Strong

By Don Pfister - AE0D Email: ka0jlf@arrl.net
5200 W. 79 St.
Prairie Village, KS 66208

As I get older I find myself reflecting even more. Over my life, I've had lots of alone time, while on the tractor on our farm, as a law enforcement officer, several night jobs, this has always for me, led to reflection. Like many things in life, reflection can be a two edged sword.

HABITAT SkyLab just had our 10th anniversary High Altitude Balloon launch. Much has happened over those 10 years. While the group has lost several prized members, I have lost some valuable friends. Fortunately, we have also gained members and friends.

Having lived in Salina, KS I often heard Pete and his group flying HAB (High Altitude Balloons) around town. While I never made it to a launch, I did get to participate some via the radio. I did go on some fox hunts, partially to train us to find balloon packages. These were the early days of HAB, no GPS, just RDF (Radio Direction Finding).

It is hard to believe we let that first balloon go Sept 27, 1997. Things were more costly back then. That first payload had a price tag of around $2000. Letting it go was a bit of adventure. Jokingly I said; "I let a balloon into the air, it comes to earth, I know not where" then the chase began. Oh what a chase! Looking back, we had very little idea of what we were doing.

That first flight and several after, the payload was made up of a GARMIN GPS engine, amplified GPS antenna, a Kantronics KCP3 (TNC), and an MFJ Data Radio on the old APRS frequency. Heavy equipment in their cases, 12 V systems, meaning heavy batteries. We did keep it below the FAA minimums. Overkill was everywhere. We learned quickly to shed weight; cases came off. Weight came down.

We have enjoyed success from that first flight onward. We go to 98k ft on that first flight, as I recall. We had a high ascent rate; since I had to pay for a full tank of helium, I used a full tank of helium. Well, let me clarify that just a bit.

Truth be known, and if you've seen the video – you know the truth; we actually let two balloons go that early morning in Sept of 97. We were very careful, did what we had heard and read about a small amount of positive lift. Before leaving for the launch site, my wife and I work on putting just the right amount of water in a water cooler to have about 2 lbs positive lift. While filling the (1st) balloon with helium, we carefully filled it until it lifted the water cooler off the ground: 2 lbs positive lift. This took about 30 minutes or so to fill that first balloon, get it all tied off to the parachute and payload.

There was about 20 or so of us, from work that made this first launch (and several following), we lined up each supporting part of the 'system'. We had line, parachute, and capsule draped over our arms. The idea was to let the balloon go and lift everything out of our hands. The idea was sound, the execution slightly flawed. The string slipped through gloved hands, and got hot quickly. This caused a chain reaction. The balloon was let go and rose quickly, all going well, until it got to the capsule. The person holding the payload capsule reacted and "HELD" the capsule package, I think hoping to regain control. Unfortunately it caused the line to break (that overkill thing again) and the balloon continued to rise, all by it's self. PRETTY NEAT STUFF!

Excitedly we all cheered and sighed both at the same time. We had successfully launched a BALLOON, but stood holding the parachute/capsule we had hoped to send with it. With no ballast (capsule) the climb rate was fast.

In foresight, as was the custom then, we had a second balloon and a second tank of helium. "That was fun, let's try again!" Now that we were an experienced group (heck we already launched one balloon), we acted like we knew what we were doing now! That second tank of helium, full tank, was out of the van and in that second balloon in about 10 minutes. No slow flow of helium this time. We cranked that value open and let the gas FLOW….

This time we didn't let the string slide but used a hand over hand grip on the line. We were airborne about 15 minutes after the first balloon rose out of sight. SUCCESS!!! With payload!!!

The GPS had a 3D lock and we were decoding APRS updates from our flight. The excitement increased a great deal. We regained composure and settled down to decide, what we do now. We watched the track draw out on the computer screen. We discussed the flight predictions and decided our plan. We loaded up the empty tanks of helium and launch equipment. The chase began.

Being an "Unmanned FREE Balloon", emphases on FREE, it is carried with the wind. WE only had one tracking system with map display. Basically we turned into a caravan of several vehicles, playing follow the leader. Thankfully we had radio communications of one type or another between us all.

Too late for "Long Story Short" the balloon rose to it 98k ft altitude and burst. Initial decent was rapid, about 10k ft a minute, even with the 6 foot parachute. The GPS lost 3D lock and we stopped getting altitude reports until it descended to about 57K

ft. then we started getting altitude reports again. The descent slowed, giving us a chance to breathe again.

Once it landed we were in the area and receiving position reports. Being new to all this, we had novice issues with our map reading and determining where we were in relation to the balloon (or vice versa). We put our heads together and sent out search parties. Of course I went with the group that went on the wrong side of the tree line. We were notified by radio the payload had been recovered.

Some of the partying had settled by the time we got back to the vehicles. All in all a great success, and a bunch of FUN! This can become addictive. And it did.

Ten years and over sixty flights later, we are still at it. Now I've taken a back seat to others that have stepped up and taken a lead in the launch and chasing. Nick has stepped up and really organized things and has the prep and launch down to a fine art! Our 10th anniversary flight was a night flight capably handled by Nick and team. Kent, Jerome, Bill and others are tracking geniuses. I am fortunate to have gained such good friends!

In our chase vehicle, Debbie drove, Cris was co-pilot, Kent was navigator, Dean, Saritha, Charlie and I were all able to track the payload with our individual GARMIN RINOs. While we still send APRS data from the capsule, we have replaced the GARMIN GPS engine/antenna flight package with GARMIN RINOs. This has been a great change. Our group has been named 'The Flying RINOs'. A couple years ago, at a working/planning session we had over 10 RINOs hanging around. We have gained even more since them. The RINOs in addition to a very effective GPS, also gives us handheld tracking. We can track the package on our own handheld RINO with maps. We can also see each other (chase teams) on the same handheld display map. We can walk right up to the payload. One more very nice feature, is the on board data logging. The RINO logs data for the entire flight. Very nice!

Bob K0FPC, and Larry, WA0GWA ,are both silent keys now. They are missed.

We have two more flight scheduled for this weekend. Sunday will be at the Ensor museum, weather permitting. We are working on a flight for some scouts the weekend of Oct. 20/21. Hopefully with many more to come.

Until then, 73 my friends.
Don AE0D

ATVQ

eBay - AN EASY WAY TO BUY ATV EQUIPMENT

Whether it's the high cost of new ATV equipment, its lack of availability, or a combination of the two, some hams have been looking for an alternative in setting up their ATV stations. That alternative usually meant going to numerous hamfests in the often fruitless search for used ATV gear, or bidding on the gear of a fellow ATV'er who has become a silent key. Now, however, there is an excellent alternative that does not involve travel, does not needlessly waste your time, but does present some great variety and bargains. It is eBay, the Internet online auction site (**www.ebay.com**).

eBay is fast becoming the "hamfest of the Internet" where buyers seeking ATV equipment can find good quality equipment for sale and can acquire it for very reasonable prices. All you need to do is go to eBay on line, sign up for an account (it is free), set your user name and password, and begin your search. There really are bargains out there. For example, just a couple of hours ago, a PC Electronics TC70-1 ATV rig (older 1 watt, 70 cm transceiver) sold for $102.50 plus shipping. Typically, I have seen the PC Electronic 10 watt rigs sell for under $200, some as low as $145 plus shipping.

So too, the bargains are not limited to ATV transceivers. There are downconverters for 400 MHZ, 900 MHZ, or 1.2 GHZ frequently up for auction. In addition, I have seen an occasional Mirage D1010 up for bid which will work very nicely with the PC Electronics' and other makers' ATV transceivers. Also, a variety of video cameras, monitors, video processors, and video switchers seem to be frequently available on eBay.

And while the above deals with used ATV equipment, there is also new ATV equipment for sale on eBay. Just type in "ATV transmitter", or "ATV receiver", in your search term box on eBay, and look through the results that come back. After you jump over all the all-terrain-vehicle (ATV) equipment, you will see, for example, that a company located in The Hague has some really neat new ATV equipment for sale at very reasonable prices (mostly under $100) and other similar companies occasionally show up as well.

The bottom line for me is that eBay has served as a very useful ATV store where I have bought through auction a number of the items mentioned above, both for myself and for others, at very reasonable prices. I have also found that buying equipment from other hams, which the sellers usually are, has given me reassurance that the equipment works properly and will be shipped promptly. Hams seem to live by the "Golden Rule" and, in my experience, consistently treat other hams as they would want to be treated.

I hope you give eBay a try. At least go to their website and search around for ATV related equipment to see what is available. You don't even need to be a registered eBay member to look. Maybe in a future article I can give out some hints as to my bidding strategy that seems to work in winning auctions. However, since I may be bidding against you guys, maybe I should think twice about that. HAPPY BIDDING!

John Watson, NY3K,
ny3k2004@yahoo.com

ATV Successes Help Bring An Unexpected QSO

By Miguel A. Enriquez - KD7RPP, Ph.D., M.B.A. Email: enriquezma@cox.net
Mathematics Teacher
Pueblo Magnet High School
3500 S. 12th Avenue
Tucson, Arizona 85713

News media and invited guests witness ISS signal acquisition.

"KD7RPP this is NA1SS" and with those words, a year of determination, planning and hard work came to fruition for the Pueblo Magnet High School Amateur Radio Club and the entire student body of the high school where I have the privilege of teaching algebra. And, ATV was there to record and transmit the extraordinary QSO.

On September 21, 2007 at approximately 15:15 UTC, as the ISS hurled over Tucson, Arizona at a speed of 17K+ miles, twenty–nine students from two elementary, one middle school and Pueblo High School waited in queue to ask Astronaut Anderson the one question each selected from several hundred entries about life in space, family communications and such. Julissa Aguilera, a first grade student from Drachman Elementary School wanted to know what inspired Clay Anderson to become an astronaut. Juan Moreno, an eighth grade student from Pistor Middle School asked if it's possible to build a station on the moon for people to live in. Reina Walker, a first grade student from Jefferson Park Elementary School asked how astronauts were able to touch things while in their space suit.

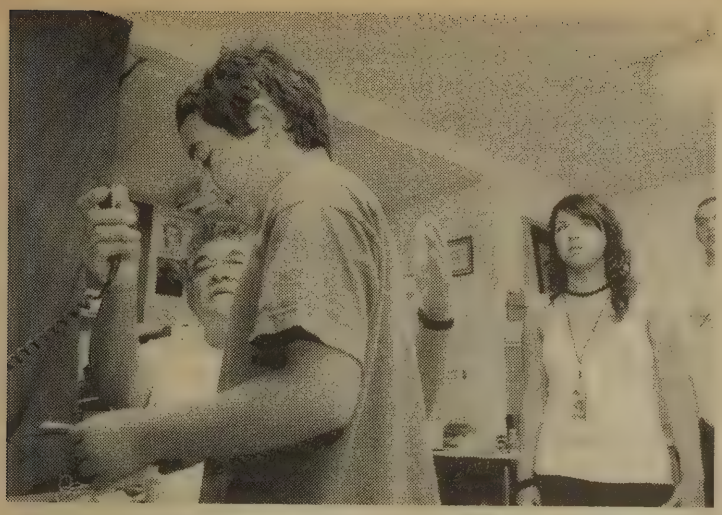
Clay Anderson's response to every student was personal, sharp and to the point. The magic of space travel and amateur radio was indistinguishable from each other at that particular moment.

I would like to report that scores, nay, hundreds, or even thousands of ATV enthusiasts viewed the historic event live. I would like to report that ATV was appreciated by many people who viewed the event. But the reality is that my friend Tony, using a R-53 receiver, sitting in his truck in a public park, is, to the best of my knowledge, the only live viewer I know of. I had asked Tony to serve as a witness so that I could assess an accurate report of the signal quality and strength. And that report is a resounding P5; thus proving that not only was the QSO carried live on ATV but that the technology we have been working very hard to implement performed magnificently well.

A few facts about this particular QSO are in order. 1800 plus students and 127 teachers plus staff watched the event via closed-circuit television at Pueblo. Three local television stations recorded the event and carried it on their evening and late night news programs. Two local newspapers gave it front-page coverage. A Spanish edition of one of the newspaper articles appeared a week later for the northern Mexico marketplace.

And, an additional, less conspicuous, fact about the QSO. Four Special Education students participated in the event including one autistic student and one Down Syndrome student. What is significant about this is that the Special Education students participated just like every other student. They submitted questions, practiced their question once they were selected, waited their turn to talk to the astronaut and processed the response as their own.

Reina Walker, grade 1, asks Clay Anderson question about space suit. ATV signal is visible on TV screen.



Tiernan Walker, grade 3, asks about the awe and wonderment of nature. Yasmin Rosales and Felipe Gonzalez wait in queue.

I do not know if this kind of "magic" is a first for NASA but on that particular Friday morning, the world was fair and magnificently beautiful. It was fair and beautiful because students with limited capabilities were represented and because Tiernan Walker, a third grade student from Jefferson Park Elementary School asked, "What is your sense of awe and wonderment about nature in outer space?" Clay Anderson responded that the earth is beautiful enough on earth but especially beautiful from outer space.

Which brings me to the purpose of this article. A poet once said that the future belongs to those who dare to dream the unimaginable. If that is true, then we have a moral imperative to leave as a testimonial of our brief stay on this planet a better life than the one we had. In particular to ATV, I believe we need to work a little harder to get the technology into more classrooms. I believe that the "awe and wonderment" of ATV needs to be better seen and understood. And I believe that ATV can be used to enrich the education our children receive because they can contribute lessons and fun for themselves. As a teacher, I know that the best form of education is kids teaching kids.

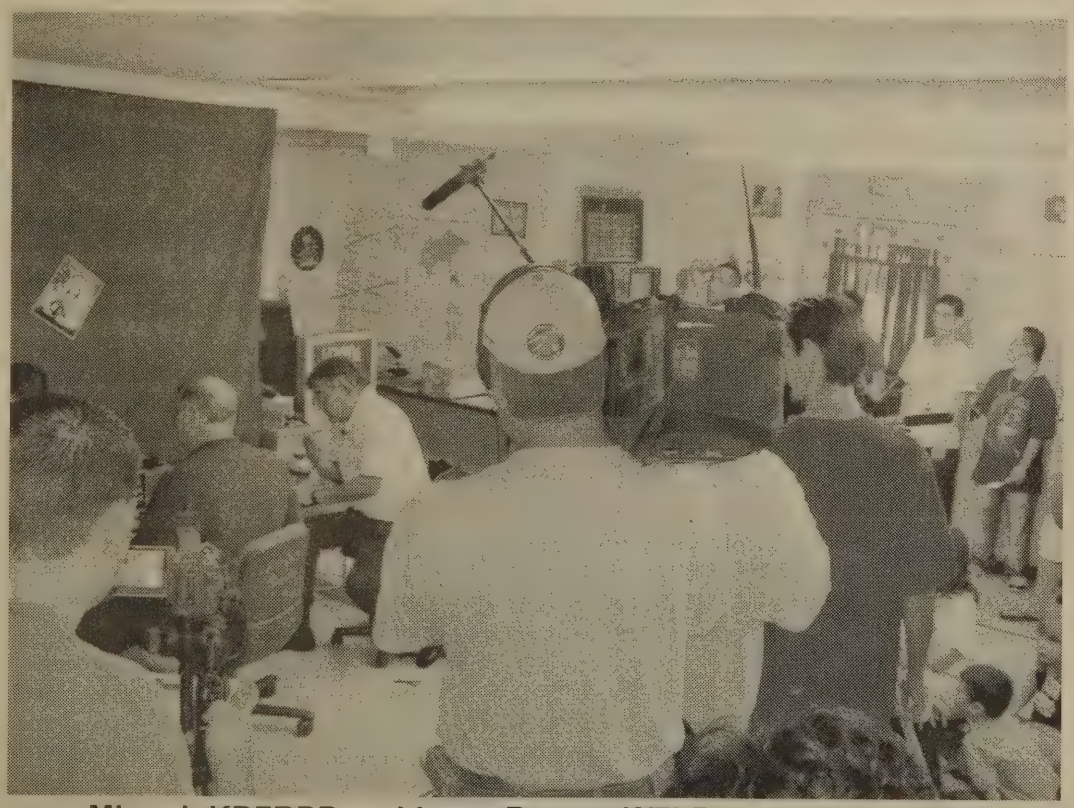
I would like to very soon write another article that proudly announces to the world that ATV is well and alive in Tucson, along with countless other places on the planet. I would like to be able to report that the next QSO with the ISS was viewed by hundreds of students throughout the world and that its transmission was deemed "an ordinary ATV event." I would like to believe that ATV has been allowed to demonstrate its inherent value because a whole bunch of ATV Elmers did what was right. That is, they taught or assisted a student somewhere to acquire the knowledge, the technology and ultimately, the signal.

Maybe I am a dreamer. But a few weeks ago, the dream most said would never happen to a whole bunch of kids from impoverished and under-educated communities because the competition was stiff and firm, did happen and with that the walls of indifference and learned helplessness that have come to define the student populations I teach were gone forever, thanks in part to the magic of ATV and the successes we have had with it over the past ten months.

To the many fine ATV Elmers who contributed to our successes like Ron Phillips, AE6QU, Mike Collis, WA6SVT, and the numerous ATV groups from Arizona and California who have provided equipment, money and moral support, a heart-felt thank you. To the many other ATV enthusiasts who could assist us and other students elsewhere and have not made a contribution yet, here is your chance to provide something of value to mankind. Students in many places await your offer of assistance.

-The 9.5 minute QSO can be viewed at
http://www.youtube.com/pueblowarriorsarc

ATVQ



Miguel, KD7RPP and Larry Brown, W7LB, operate satellite station to re-acquire ISS contact as local media record event. W7ATN callsign visible on tv screen.

Emergency Communications Test With ATV (DD8AKA)

How It All Began

After our ATV demonstration at the traditional "Ochsenfest 2000" the "Malteser help organization" asked our local DARC chapter F19 Wetzlar (Hesse, Germany) in the year 2001 if it was possible to present live video from simulated disaster scenes to public representatives. The exercise was planned for several scenes distributed over some hundred square meters.

At the event we used up to 4 "mobile" camera teams delivering video on 23 and 13 cm to our "direction van". On one building containing a scene of a manned repeater was used: from the inner courtyard video was sent to the roof and then relayed to the direction van. There additional text information were overlayed and the result transmitted to our ATV repeater DB0LDK, and it´s output was received at the specially equipped "vip" room.

Sorrily this event - originally planned for October 13 in 2001 - had to be delayed to spring 2002 after the New York "Twin-Tower" collapse of "9/11".

Emergency Test 2006

Last year we got another inquiry by the "Malteser help organization" in Wetzlar. At a fake train accident where a passenger train hit a private car on a level crossing, the car was dragged along into a kettle-car on a siding leaking diesel into the river Lahn nearby. Involved to the rescue exercise were 5 fire brigades, the central management, Malteser, Red Cross, Technical Relief Organization, German Live Savers, German Railway and Police. The DARC chapter Wetzlar (F19) was supported by DO2FMD from F20, who submitted his small emergency communications trailer and personal help during the exercise.

After a perpetration of the scene we decided to put a repeater onto the "Rital-Arena" roof relaying the 10 GHz output signal from our direction van to the "Live Savers" building via AGAF DATV modules on a 23 cm link. The 2 portable ATV teams were received on 13 cm with two satellite TV receivers in the direction van, the portable FM-ATV TX units had a tested output of 160 mW. The chosen frequencies (80 MHz spacing) assured minimal mutual interference, and the different polarization (vertical) excluded impairments on the DB0LDK repeater input. This also helped to utilize reflections at building walls. Interference from the town of Wetzlar had been excluded by placing the direction van at the opposite side of the arena building.

Perspective 2007

Shortly after the emergency drill 2006 we got an inquiry for the next exercise on June 16 in 2007 at Haiger. There we are planning to use a portable repeater based on DATV modules from SR-Systems. 4 analog links on 13 and 23 cm will get digitized and streamed in a digital transport stream from a church tower to our direction van. The selected video output from there will be shown on a big screen and in the mobile headquarters. Besides we shall transmit the official ceremony on the occasion of the hessian DARC chapter`s 60 years jubilee on the ATV repeater DB0HAU.

Now some word on the emergency drill discussion in TV-AMATEUR 144, page 34: all DARC chapters and all German hams are having hard times recently to practice their hobby in a sensible way. This is because of the "electromagnetic environment compatibility declaration" (BEMFV), which is deterring many hams to be actively working the higher frequencies or leading to only portable activities. Therefore it is important that we all are publically visible and promote our hobby in all it´s facets. Every time when an emergency exercise allows to be used for ham radio publicity, we should try to take part. Maybe the transmissions are ATV, SSTV, packet-radio or even phone via amateur radio repeaters - everybody who is arguing about this, should worry about a future without repeaters when there is no amateur radio lobby any more. There are signs on the wall already - see antenna and power restrictions on telecom towers (more below).

The DARC chapter Wetzlar has had constructive talks about present and future public relations activities. It was manifest that modes like ATV and SSTV are useful for emergency communications as there is less information falsification, and they have more public relations value than Morse or phone contacts. We are looking forward to be asked to participate in emergency communications exercises in the future.

Chronicle Of Decline (DL4KCK)

Preface: Many amateur radio repeaters in Germany are located on telecom towers or buildings because of the outstanding antenna altitude which is also essential for long range links and beacons. As the former owner, the post and telecom ministry, was interested in good technicians which had often come from amateur radio sources the financial conditions for the sublease were excellent. After denationalization and splitting of post and telecom authorities a revision of location conditions at 48 very good repeater sites ended with hard restrictions: max. 100 W power supply (electricity primary!), maximum of 4 antennas with up to 1 m squared wind-weigh. As these sites are often used for several amateur radio modes, these restrictions are creating different consequences - many packet radio nodes have gone qrt, and some high demanding DATV repeaters with several DATV links had to remove some antennas or even terminate their service. Negotiations with the company DFMG (now owner of telecom towers) were delayed endlessly by the special telecom amateur radio group VFDB which stated their monopoly on that matter, and so here are listed some consequences for ATV repeaters above all.

DB0HOB/DB0TR QRT

Sorrily we are hit by the utilization changes at our location "Hochries" (Black Forest) in full swing with packet radio, FM, APRS, and ATV repeaters. Following the DFMG deadline (double meaning!) we have to shut down and pull out everything

within the next weeks. If there will be any amateur radio activity on that mountain again is not certain now. We shall try to find a new spot at the Hochries cable railway building. Because of difficult preparations beforehand (contract with owner, insurance, statistical calculations, electromagnetic environment certificate) and extensive construction measures we are not able to make a schedule. Our DARC chapter cannot carry that financial and personal workload unaided, donations are welcome!

For amateur radio in Germany this DFMG decision means a complex breakdown of several radio-networks and a reorganization of the extensive link structure. It will need some time to find new locations and fill the gaps, and I ask all amateur radio friends to be patient and give a helping hand in the meantime.
Klaus, DL8MEW, head of DARC chapter C14

DB0TVI/DB0INS are shut down,
DB0THB runs only in a meager way.

DB0SCS Nuremberg
According to a VFDB publication the DFMG tower locations have to reduce to a smaller scale, which is curtailing our linking projects to Schneeberg/Ansbach/Hesselberg/Parsberg. Inputs and outputs at DB0SCS will stay operational, but all links besides the one to Ingolstadt will have to cease. The ATV repeater alone is using more power than provided by the order, so we will need contributions from our users to extend operating.
db0fhn.efi.fh-nuernberg.de/db0scs/

The repeater DB0ZF with 2m, 70cm, 23cm phone and ATV will have to reduce to 2m FM and ATV in/out only, no links any more. DO6SE

DB0DTV Silent Key
On March 24 in 2007 DB0DTV (Hamburg) will be dismantled completely. DG3HT at **www.db0dtv.de**

DB0EUF (lower Elbe river)
Today we reduced the antennas to the proportion demanded by VFDB and removed the entire repeater electronics in order to ensure the demanded 100 W power supply restriction. Also the ATV intermediate point at DB0SAW serving as linking aid to DB0HEX (Brocken) was dismantled ultimately, and the digipeater antennas there have been decreased according to the instruction. Thanks to DB2OQ, DL6YEA, DL8MKG and DG0CBP.
(DL4KCK remark: DB0HEX was relocated earlier from a DFMG site to a building near by, see former issues)

DB0XXP (Wuppertal)
In order to follow the DFMG requirement all antennas and installations of DB0XXP have been dismantled, 70cm/2m-Multiplexer and ATV repeater are staying out of order.

DB0SAX (Saxony)
The following repeaters on my duty listing are not QRV any more or have gone QRP according to the instructions for DFMG tower locations:
DB0SAX 2m FM QRT, DB0SAX ATV QRT, DM0SAX 70cm FM QRP, DB0FT 2m FM QRT, DB0FT 70cm-FM QRP.
Rocco DL1XM

DB0SWN (Schwerin)
The ATV repeater DB0SWN has been removed to modify it for lower power, and after reconstruction the 70cm FM repeater will have to get relocated.
VFDB bulletin

DB0KO (Cologne)
The complete installation with antennas and electronics has been removed, as DFMG sent a termination message for Bornheim-Merten dating to end of June 2007! Sys-op Helmut DG3KHS will transmit the weekly ATV bulletin from his home QTH nearby, but some users will have to redirect their antenna.

VFDB info (May 2007)
We are proud that our Sysops have completed the reduction of 90 percent of the locations over such a short period, and we have reported this execution to the DFMG. Some positions were given up for different reasons, and the database is settled in conjunction with DFMG. Sorrily from 11 locations we did not receive any feedback in spite of several letters to them, so the DFMG was asked to remove them from the VFDB contract. (DL4KCK remark: a timely fulfillment report from the DB0KO sys-op did not reach the deciding party...)

Reduction on DFMG locations - what next? (DH4DAI)

Short summary of a discussion at the 23rd "International Packet-Radio Meeting" in Darmstadt:
We were not able to clarify the question of origin for the reduction numbers "4 antennas" and "100 Watt power consumption", but all agreed that these were only "political" numbers, which do not fit to the reality of actual repeaters. Of course the sysops have to observe security requirements, and they are building up more energy-saving awareness. Additional to the DFMG requirements also the VFDB information-politics were criticized, several effected digipeater sysops disputed personal info from VFDB. The amateur radio public would not get any information while broad masses are concerned by this topic. Sysops denied that a digipeater with more than 4 antennas could be called unruly (the first VFDB info did so). There were some super-nodes with many rf links in a brilliant mechanical and electronic shape.

Skepticism prevailed about the future of amateur radio locations at DFMG towers, some OM suspected that this reduction could be only a start for a development that ends with a complete loss of these locations. For the announced negotiations between VFDB and DFMG we worked out as a minimum demand that the peak value 100 W power consumption should be specified as an average number over a whole day or a week. Otherwise this would mean the end of all digipeaters. Also more flexibility with antenna numbers and surface was on the whish-list.

Translations by: Kramer Klaus - DL4KCK
DL4KCK@t-online.de

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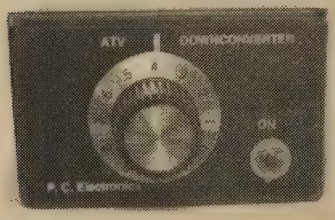
TVC-4S 420-450 MHz ATV DOWNCONVERTER

The TVC-4S is a ready to go ATV downconverter designed to mix the 5 standard ATV frequencies in the 420-450 MHz amateur band down to TV channel 3, or 4 with 20 to 30 dB gain. The preamp stage uses a HJ-FET with a <.4 dB noise figure. A TVCX-4S board is mounted in a shielded enclosure ready to go with external +12 Vdc or 120 Vac 60 Hz power supply adapter.

TVC-4S: For short runs (<20 ft) to a coax T/R relay or antenna, a good grade of RG58/U coax can be used with a type N connector on the TVC-4S 50 ohm 70cm antenna input end. Some have used ready made 75 ohm TV coax with F connectors and F to N adapter for short distances and accept the reduced sensitivity. Ready made coax cables and connectors are available from Nemal (305) 899-0900. For longer runs and lower loss, use either the Belden 8214 (3.8 dB/100') or better Belden 9913 (2.6 dB/100') or LMR-400 coax with N connectors. In all cases, the antenna you connect to should be as high up as practical, same polarity, and designed for the 420-450 MHz frequency range. Weather proof all outside connectors. Run a RG-6 75 Ohm cable with F plugs from the downconverter TV output to the TV antenna input jack. Set the TV to channel 3 or 4, whichever is not used for over the air TV in your area. Standard output is channel 3, but if channel 4 is desired, jumper to ground solder pad 7 on the board inside. Other connectors, coax cables and adapters are available from Radio Shack, Nemal or your favorite ham store. The TVC-4S can be powered by the 120 Vac 60 Hz/12 Vdc adapter provided or an external 11 to 15 Vdc @ 120 ma with a 2.1 mm power plug (RS 274-1569 center is +) for battery or mobile operation.
See other side of this sheet for setup and antenna info.

TVCX-4S: The board layout is shown below. It must be mounted in a shielded enclosure to keep strong adjacent channel TV broadcast interference out like we do in the Hammond 1590C box for the TVC-4S. The HJ-FET preamp and GaAsfet mixer stages have more than enough gain and low noise figure that adding preamps (except at the antenna) will not significantly improve sensitivity further, infact will only increase intermod interference. Oscillator trimmer cap C6 should not be touched unless outside +.5 / -.2Vdc from .5 Vdc on channel 1, the lowest frequency. Use only an insulated tuning tool. Output is TV channel 3, 61.25 MHz with no jumper or TV ch 4 if 7 is jumpered to ground. Pad 8 is jumpered for 45.75 MHz IF but other parts are changed also. If no jumpers at all, the default is channel one downconverterd to TV ch3. The lowest channel jumpered to ground is always selected if more than one are selected. Therefore, if you only want to select between two channels, jumper the higher channel solder pad on the board and run a toggle switch to the lower channel solder pad. Channel 6 is only for special ordered frequencies. For all 5 channels, run wires from pads 1-5 to a panel mounted rotary switch and wiper to ground or board soldered digiswitch. Output can be just a wire up to 4" long and the input no longer than 1/4" or else run coax with the shields connected directly to the board ground plane and connector shell on the other end respectively.

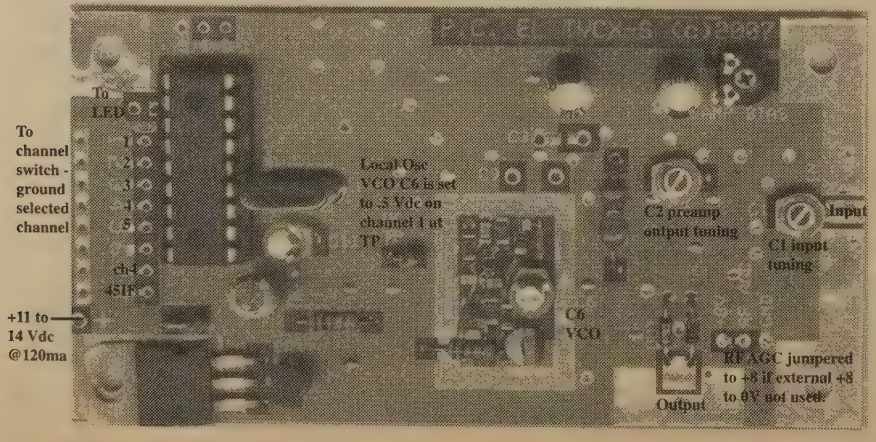


Ch	Freq.
1	421.25
2	426.25
3	427.25
4	434.0
5	439.25

TVCX-S Board

RF AGC (optional) designed for use with VRC-45 receiver board. For manual RF gain an external 10K pot to vary from 0 to 8 Vdc can be added to reduce strong signals as may be found during demos or public service operations. 8V at the RF AGC solder pad is the highest gain and the preamp bias pot on the board is set for that. If the no signal AGC is less such as when connected to the VRC-45 receiver RF AGC (6V nominal) the Preamp Bias is reset for max gain on a weak signal. C1 can also be fine peaked for best picture on a weak signal.

LED Run leads from the LED solder pads to a panel mount LED to indicate power on. Square pad is the + side.or anode.



C11 is used to net the local oscillator to within +/-10 kHz of center frequency. **C9** peaks the local oscillator injection to the mixer when high side LO injection is used for IF output.

Trouble Shooting: check all coax and power connections. Moisture in coax? Rotor calibrated? TV on open channel? Try receiving a different station known to be line of sight? If the panel lamp is out, check the internal 1/2 Amp fuse. Check external power supply voltage and polarity. Check VCO TP for .5 Vdc +.5/-.2 Vdc on channel 1. Note that the RF input is DC ground through a RFC to discharge static buildup if checked with an Ohmeter and the output has back to back diodes as protection against leakage from a hot chassis TV set. See service policy on ordering page 9 in the catalogue or on our web site - Repair Authorization Form.

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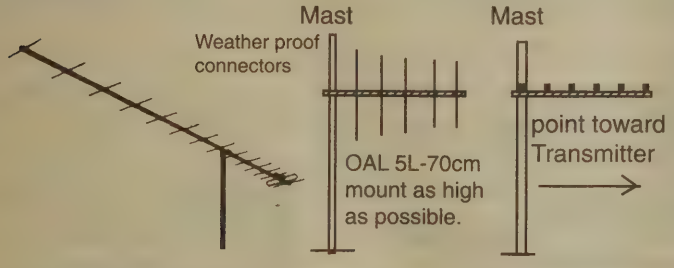
ANTENNA SYSTEMS

The antenna system is *the most important* part of your ATV system. The antenna must be the same polarity as the transmitting antenna and line of sight between them if at all possible. Trees, foliage, houses, etc. greatly absorb UHF energy. Compared to FM voice systems with the same power, antenna, etc. just the system bandwidth going from 15 KHz to 3 MHz in the receiver will decrease your sensitivity 23 dB. With this bandwidth the noise power floor is around .8 µV. So you can see quality coax and high gain antennas up as high as possible are necessary to make up this difference compared to the DX you are used to with FM simplex.

Find out from local hams which polarity is in use. Performance in the 70 cm band is the same for horizontal or vertical, but cross polarization can cost you up to 20 dB. Areas which have had most hams come to ATV from 432 MHz weak signal CW or SSB will tend to be horizontal, and those that were on UHF FM or more into public service and mobile will be vertical. Most repeaters will be vertical due to the lower cost and ease of buying omnidirectional gain antennas.

Antenna separation should be at least 7 ft, in line, driven element end to end spacing with 33 or 23 cm antennas for duplex ATV or crossband repeater work.

Antennas for ATV work must also have broad bandwidth as well as gain. Most high gain Yagi types have only 1% bandwidth, or 4 MHz at 70 cm. This will give less gain and higher VSWR to the most important color and sound subcarriers assuming that the antenna was cut for the exact video carrier frequency in the first place. The best true reference for antenna gains and performance is the results of the various VHF/UHF Conferences antenna measuring contests held annually and publicized in the ham magazines. Advertising claims have become mostly wishful thinking and sales hype.



DSFO-25ATV 16 dBd 70 cm beam antenna — Vertically Polarized — Horizontally Polarized

Some beams designed for broad bandwidth that have proven out on ATV over the years are the OAL 5L-70cm and the DSFO-25ATV. The 5 element antenna is only 31" long, end mounted, but has 8 dBd gain. The DSFO-25ATV is highest gain at 16+ dBd and a 17 ft boom. See page 20.64 in the ARRL Handbook for info on the K1FO antennas. Omni antennas can be used but are less gain and more susceptable to multipath ghosting. There are circular polarized crossed Yagi antennas mostly used for amateur satellite work that can be used. Circular polarization lets you work all modes & antenna polarities plus has the added advantage of less multipath dropouts and ghosts than a fixed polarity. Check our catalogue and web site for other antennas and vertical omni antennas that have been checked out by us for ATV.

ANTENNA CABLE

Use only new or tested low loss coax that has at least 95% shielding. We suggest Belden 8214 (3.8 dB/100' loss), 9913 (2.5 dB loss at 400 MHz) or LMR-400. RG 213 or 214 is fine but has a loss of 4.7 dB/100'. For runs over 100' you may want to consider investing in some good copper hard line and/or an antenna mounted low noise preamp such as the Mirage KP-2 which also has automatic T/R switching. An antenna mounted preamp can increase receive sensitivity by an amount equal to the coax loss.

Use type N connectors for all outside coax connections. Take care to properly put them on the cable. Prevent moisture contamination of the coax by wrapping all connections with two layers of vinyl tape. Coax Seal is also good. Then spray all connections and antenna with *clear epoxy* paint. Colored paint may have conductive particles in them that will affect the antenna gain or match, or give intermods. Moisture in the coax results in increased loss and greater possible intermod interference. If moisture contamination is suspected, peal back the braid and look to see if it is still bright. If it is oxidized, replace it. VSWR will actually look better with the higher loss from moisture contamination.

DX "What kind of distance can I expect?" is the most asked question. There is no pat answer because of all the variables. But for a practical snow free picture with a 42 dB sync to noise ratio it is over 100 miles if you have line of sight. This is based on line of sight, DSFO-25ATV beams, 3 dB coax loss, and using the TC70-20 20 watt transceiver. 27 miles with 20 watts and 8 dBd antennas like the F718 omni and 5L-70cm.

For greater DX most of your time and effort should be in the antenna system... greater antenna height, lower loss coax or bigger antenna. This will improve both transmit and receive conditions. DX will double for every 6 dB of change. Antenna placement should be away from and above trees and roof tops. The RF horizon on flat terrain for an antenna at 50' above ground is 10 miles - Miles = square root of 2 times the height in feet. Foliage greatly absorbs 70 cm energy. You can experience non-line of sight DX depending on reflections, temperature inversion skip, and use of ATV repeaters. See the ATV DX graph on our web site which gives line of sight DX given antenna gains and transmit power.

TV SETUP

Any TV set or VCR tuner should work well with the ATV downconverter. 75 Ω coax must be used between the downconverter and TV sets antenna terminals. Do not use twin-lead as it can act as an antenna. Set the TV tuner to channel 3 or 4, which ever is not used in your area. With the downconverter connected but *not on*, rock the TV fine tuning back and forth to make sure you are right on the selected channel and that there is no adjacent channel interference. Then turn on the downconverter and set the downconverter channel knob for a known close by line of sight station that is on the air using that frequency. A 2 meter simplex ATV coordination channel is very handy for talking in the stations picture for antenna alignments and other adjustments while talking full duplex on the sound subcarrier. 144.340 (439.25) and 146.430 (434.0) simplex are the most popular.

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Payment for Technical Articles

ATVQ will pay for certain articles that it publishes. I will outline the policy here, but it will be subject to change as needed to make sure that ATVQ continues to be an ongoing publication. ATVQ will pay $25.00 for technical articles that are published and are a minimum of 2 pages. While this is not a great amount, I hope it will encourage more technical type articles to be written. Exceptions will be articles that are written by a manufacturer/seller of equipment that is being written about. While I do not want to discourage this type of article, the article itself is an advertisement of the product. Articles from clubs will be encouraged, and I would expect they would like to share their information with the ATVQ readership. Information gathered from the Internet will not be paid for and is mostly small filler items.

Ideas

Do you have an idea for an article that you've said to yourself that you wanted to write, but never did. Feel free to check with us to see if it is of interest, or write and send it in. No guarantees that it will get published, but if you don't try, you will never know. I'll be looking to see what you can do!

CONTRIBUTORS GUIDE

Preferred method of receiving articles is from **Microsoft Word**, however **Wordperfect** is OK too. Next preference would be **ASKII text**, followed by **typewritten** or **hand written** (clearly). Diagrams or pictures (B&W or Color) can be sent in hard copy, or if you scan them in, save to PCX or JPG formats (actually I can read about anything). If you send a computer disk, make sure it is PC (not MAC) format.

When sending in articles in Microsoft Word, please SAVE with FASTSAVE OFF and save in Word 6 format. Also, articles written in any word processor, consider what will happen when it is re-formatted to fit the style that I might put it in. An example would be setting up tables or adding figures into the article. They can be very hard to strip out. If possible, put the tables, figures, each in a file by itself. This will help me to be able to import into the magazine format.

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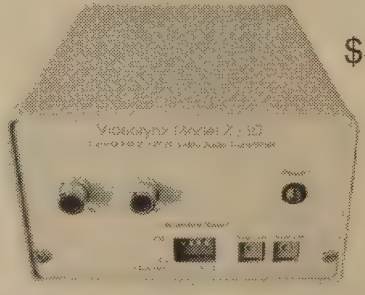

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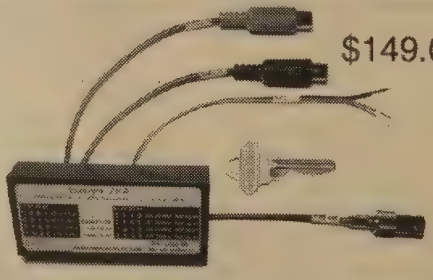

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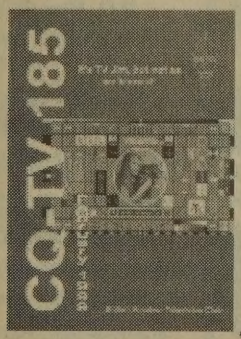

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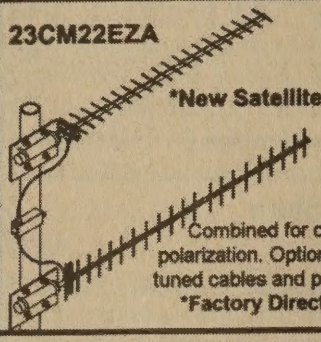

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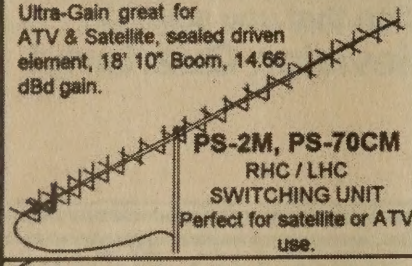

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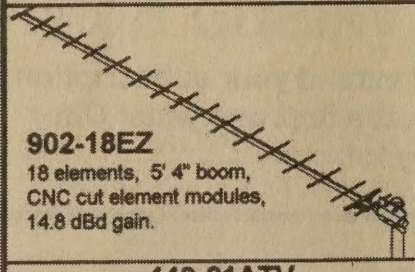

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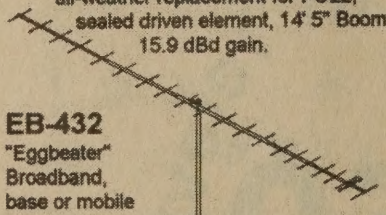

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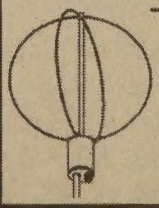

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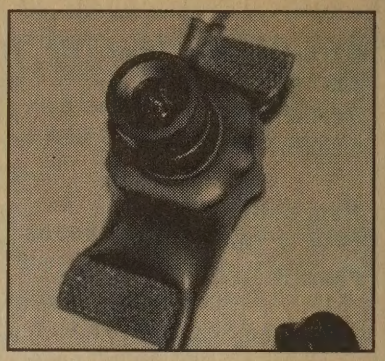

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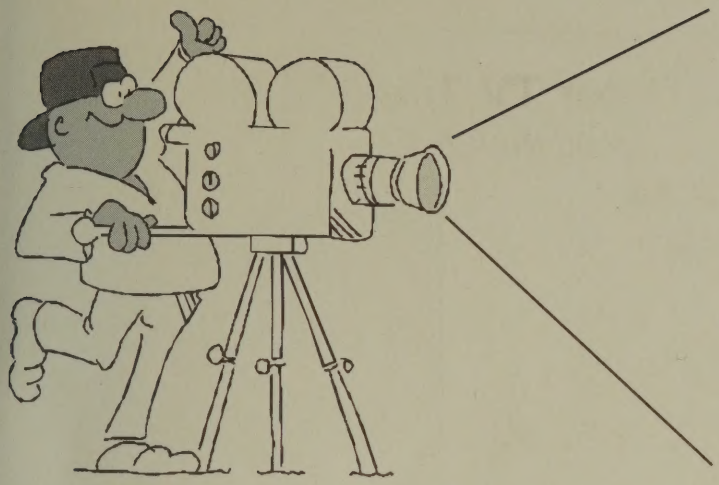


ADVERTISE IN ATVQ!

ATV'ers are hams that build projects more than other hams. They have a varied background ranging from technician to engineer, and just might see a need for your product in their regular job as well as in their hobby. I hope to hear from you soon.

Please call TODAY!

Gene Harlan - WB9MMM - Editor/Publisher

RESERVE YOUR SPACE TODAY!

1-815-398-2683 - voice

1-815-398-2688 - fax

DEADLINES			
COVER DATE	COPY DEADLINE	TO PRINTER	MAILING DATE
WINTER	JANUARY 1	JANUARY 15	FEBRUARY 1
SPRING	APRIL 1	APRIL 15	MAY 1
SUMMER	JULY 1	JULY 15	AUGUST 1
FALL	OCTOBER 1	OCTOBER 15	NOVEMBER 1

AD RATES Effective November 19, 2004		
	INSERTIONS PER YEAR	
SIZE	1-3	4 up
FULL PAGE COLOR	$650	$500
FULL PAGE B&W	$160	$140
ADDITIONAL COLORS/PAGE	$100	$100
1/2 PAGE B&W H or V	$110	$80
1/4 PAGE B&W H or V	$85	$55
1/6 PAGE B&W H or V	$55	$38

Multi-page ads are billed at the combined rate based on frequency.
Covers are reserved for COLOR ads.
All typesetting and layout charges for non-camera ready ads will be added.
Covers II, III, IV $30 extra.
If negatives are not provided for color ads, add $50.

While we will try to adhere as close as possible to the above dates, we reserve the right to adjust as needed.

If material is going to be late, please call to check if it will meet our schedule. We will try to accommodate everyone as best as we can.

Camera ready art or negative film right reading down is acceptable.

Trim Size: 8 1/2 x 10 7/8
Bleed Size: 1/8" beyond trim
Live matter: 1/4" within border

Harlan Technologies reserves the right to reject any advertising which is not in keeping with the publishers standards. Previous acceptance of any ad will not prevent Harlan Technologies from exercising the right to refuse the same advertisement in the future. Advertising orders are subject to the terms on the current rate card. Advertisers assume all responsibility and liability for any claims arising from advertisements and will protect the publisher from same.

Harlan Technologies will position ads in ATVQ at its discretion except in the case of preferred positions specifically covered by contract or agreement.

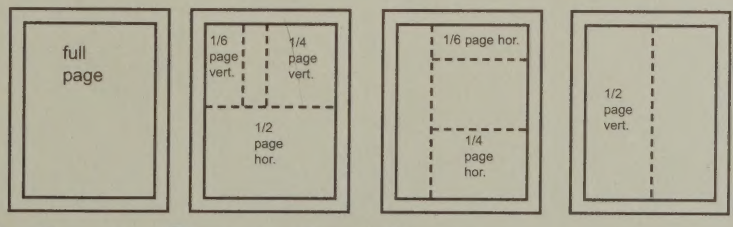
If, for any reason, the publisher fails to publish an advertisement, it will not be liable for any costs or damages, including direct or incon-sequential damages.

Terms: All accounts not pre-paid are billed net 30 days. All accounts over 30 days are billed at 1 1/2% per month. Prompt payment is always appreciated.

RESERVE YOUR SPACE TODAY!
1-815-398-2683

AD SIZES

	VERTICAL		HORIZONTAL	
	Width	Height	Width	Height
FULL PAGE	7"	10"	---	---
1/2 PAGE	3 1/2"	10"	7"	5"
1/4 PAGE	3 1/2"	5"	5"	3 1/2"
1/6 PAGE	2 1/4"	5"	5"	2 1/4"



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